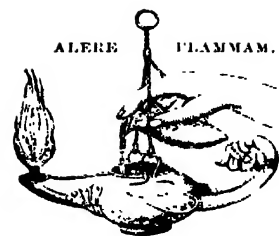


A MONOGRAPH
OF
THE NECTARINIIDÆ,
OR
FAMILY OF SUN-BIRDS.

BY
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TO
MRS. ELIZABETH SHELLEY
THIS WORK
IS DEDICATED
BY
HER AFFECTIONATE SON,
THE AUTHOR.

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INTRODUCTION.

I BELIEVE that my first attraction towards the family of Sun-birds took place in Nubia, where I fell in with *Hedydipna metallica*, the first truly tropical form of bird that I had ever procured. The sense of pleasure with which I preserved my first specimens of this beautiful little species on the banks of the Nile above the First Cataract, and the engaging habits of the species, impressed me so much, that on all my subsequent visits to the African continent I paid especial attention to the Sun-birds in each country I visited. At that time, in the year 1870, I believe that both the late Marquis of Tweeddale and Mr. Bowdler Sharpe contemplated the production of a Monograph of the Nectariniidæ; and it was only on their making no signs in this direction that, after a lapse of some years, I commenced to write the present work. If I have succeeded in reducing the subject to a better state of order than it before exhibited, it is in a great measure due to the kindly assistance which I have received from ornithologists in all parts of the world, while at the same time I feel that I have left no stone unturned, nor spared any pains in my endeavour to make my Monograph as complete as circumstances would allow.

The chief difficulty which lies in the path of an ornithological student in the present day arises from the vast increase in the literature of the Class of Birds which has taken place during the last twenty years: as regards species, many are described by authors who do not sufficiently master the subject, and thus needlessly add to the already overburdened synonymy of birds; while as regards genera the case is still worse; for there seems to be a growing tendency to recognize style of colour and slight peculiarities of plumage as generic characters, when there is *no structural difference* to define such genera clearly to the mind's eye. Professor Schlegel and Dr. Finsch have both of them waged war against this practice; and if they seem to have erred a little on the other side, and to have been guilty of too great a compression, it is better to have widely comprehensive genera which possess the advantage of definition, than a multitude of generic names which are capable of no definition whatever. On the principle of admitting none but definable characters for genera, Mr. Sharpe worked out his Monograph of the Kingfishers; and it is by no means encouraging to observe how his careful studies have been ignored by many subsequent writers, who have revived for the Kingfishers many genera which Mr. Sharpe had suppressed on the grounds that no structural characters for their separation were forthcoming. Every naturalist is at liberty, of course, to hold his own opinion; but it appears to me that in consulting a Monograph, which is in most cases the result of years of study of a whole group

together, and whose author may be credited with having a wide grasp of his subject, the author of a casual paper is bound to accept the conclusion of a Monographer, unless he clearly shows some reason for a contrary decision. In the Nectariniidæ the metallic plumage of its members has proved fatal to the simplicity of its nomenclature, author after author having apparently vied with one another to fix generic differences upon style of colouring alone; and I must confess that at an early stage of my work I was myself inclined to attach an importance to similar characters which a more prolonged study has now compelled me to ignore. The genera which I admit in the Introduction now published are even less than those recognized in the body of the work, as I have become convinced of their instability in the matter of structural definition.

When I first began the present Monograph I applied to this family the title of the Cinnyridæ, which I am now of opinion should be discarded for that of the Nectariniidæ, *Nectarinia* being the oldest genus; but this is a technical point upon which much argument might be expended and no assistance rendered to science. I also fell into the error of recognizing the generic title *Anthodiæta* in the first Part of my work, in 1876. I am now convinced that it should not be separated from *Anthreptes*.

To avoid the inconvenience arising from the great numerical strength of the genus *Cinnyris*, I have found it advisable to recognize smaller divisions, which, as they do not depend upon structural characters, I prefer to consider groups rather than subgenera: these mostly agree with genera of some of the older writers, as Cabanis and Reichenbach; and several of the continental authors of the present day still use them.

Before concluding the Introduction, I beg to express my warmest thanks to the many friends who have contributed to the success of this my first ambitious endeavour to produce a standard work upon birds. To Mr. Bowdler Sharpe my thanks are first due for putting me in the right road at the commencement, and for the kind assistance he has lent me throughout wherever doubtful points required advice. The next to assist me was the late Marquis of Tweeddale, who placed the whole of his valuable collection of Sun-birds at my service: it includes a large number of types of the Philippine forms; and without his assistance my work must have been very imperfect. To Dr. Günther my acknowledgments are due for the assistance I derived from the British-Museum collection and for the warm encouragement he gave me when I began. In India I found a true friend in Mr. Allan Hume, who not only sent me home all the specimens I wished to examine from his large collection, but also his original notes upon this family, made by himself and Mr. Davison: these form a very important portion in the history of the Sun-birds of the Asiatic region; so that to those two ornithologists I owe chiefly the success of my articles upon the Indian forms; but my thanks are also owing to Mr. Eugene Oates for his assistance in treating of the Burmese species. In Turin I met with great assistance from my esteemed friend Count Salvadori, especially in working out the difficult *Hermotimæ*; and although I have ventured to differ from him in a few instances as to the value of some of his specific characters in this group, on the whole I have been much guided by his judgment, which I cannot too highly appreciate. On my return from Turin Dr. Meyer sent me a large series of

Papuan Sun-birds, including all his lately described species, which were of great assistance to me in verifying the accuracy of my former conclusions, especially of my fifth Part, which had, unfortunately, gone to press; so that at the time I was unable to acknowledge much of the assistance I derived from his specimens. To Professor Barboza du Bocage I am indebted for being able to examine the new species from the interior of the Portuguese settlements in Angola, and for other valuable assistance, and to Dr. Otto Finsch for assisting me with some very rare specimens, and for placing at my service his original notes upon this family.

From Australia I received aid from Mr. Ramsay; and amongst my other supporters I have specially to thank Professor Milne-Edwards and M. Oustalet of the Paris Museum, and M. Bouvier, and in England Professor A. Newton, Mr. E. Newton, Dr. P. L. Selater, Mr. Salvin, Canon Tristram, Captain Elwes, and Mr. Gould, from all of whom I have received important assistance; while many other naturalists have supported me in my work, and have my warmest thanks.

The illustrations, which form such an important portion of my Monograph, have all been executed by Mr. Keulemans, whose name is sufficient guarantee for the accuracy of the details and for high artistic skill. The latter is rendered perhaps more striking from his being acquainted with this family of birds in their native haunts; and his notes upon the Sun-birds inhabiting Prince's Island have been incorporated in my work. The lithographs have been printed by Messrs. M. and N. Hanhart, the colouring executed by Mr. Hart, whose work is well known to the public as artist in Mr. Gould's publications, and the printing has been done by Messrs. Taylor and Francis; to all of whom I am obliged for the care and prompt attention they have bestowed in the execution of their special departments.

DATES OF PUBLICATION.

PART I. JULY 28TH, 1876.

Contains descriptions of *Anthodiæta collaris*, *A. hypodila*, *A. zambesiana*, sp. n., *Nectarinia famosa*, *Cinnyris microrhyncha*, sp. n., *C. osiris*, *C. zeylonica*, *Anthodiæta rectirostris*, *A. tephrolæma*, *Urodrepanis*, gen. n., *U. christinæ*, *Cinnyris mariquensis*, *C. bifasciatus*, *C. gutturalis*, *Neodrepanis coruscans*, and figures of *Anthodiæta collaris*, *Nectarinia famosa*, *Cinnyris zeylonicus*, *C. mariquensis*, *C. gutturalis*, *Neodrepanis coruscans*, *Æthopyga dabryi*, *Cinnyris brasiliæ*, *C. amethystinus*, *Promerops cafer*.

Since the publication of this Part I have come to the conclusion that *Anthodiæta* could not be separated from *Anthreptes*, that the title *brasiliæ*, Gm., should be replaced by the name *hasselti*, Temm., and that *Promerops* should be excluded from the family.

PART II. NOVEMBER 29TH, 1876.

Contains descriptions of *Cinnyris kirkii*, sp. n., *Æthopyga dabryi*, *Cinnyris verreauxi*, *C. olivaceus*, *Nectarinia cupreonitens*, sp. n., *Cinnyris notatus*, *C. superbus*, *C. johannæ*, *C. talatala*, *C. albiventris*, *C. afer*, *C. chalybeus*, *C. chloropygius*, *Promerops cafer*, *P. gurneyi*, *Anthobaphes violacea*, and figures of *Cinnyris verreauxi*, *C. olivaceus*, *C. notatus*, *C. superbus*, *C. johannæ*, *C. talatala*, *C. albiventris*, *C. afer*, *C. chalybeus*, *C. chloropygius*.

The title *C. talatala* (Smith), 1836, should be changed for *C. leucogaster*, Vieill., 1819, the type of which is in the Paris Museum, and was not examined by me until 1877.

PART III. FEBRUARY 27TH, 1877.

Contains descriptions of *Cinnyris fuscus*, *C. dussumieri*, *Anthreptes hypogrammica*, *Cinnyris cyanolæmus*, *Eudrepanis*, gen. n., *E. pulcherrima*, *Æthopyga shelleyi*, *Æ. magnifica*, *Arachnothera dilutior*, *Cinnyris frenatus*, *C. jugularis*, *C. flammæ*, *C. rhizophoræ*, *C. pectoralis*, *C. bouvieri*, sp. n., *C. andamanicus*, *Nectarinia tacaze*, and figures of *Cinnyris fuscus*, *C. dussumieri*, *Anthreptes hypogrammica*, *Cinnyris cyanolæmus*, *Eudrepanis pulcherrima*, *Æthopyga shelleyi*, *Æ. magnifica*, *Arachnothera dilutior*, *Cinnyris frenatus*, *C. flammæ*.

PART IV. MAY 25TH, 1877.

Contains descriptions of *Cinnyris hasselti*, *C. speratus*, *Anthreptes simplex*, *Cinnyris minimus*, *C. reichenbachii*, *Æthopyga gouldiæ*, *Æ. flavostriata*, *Eudrepanis duyvenbodei*, *Chalcostetha insignis*, *Cinnyris asiaticus*, *C. grayi*, *C. porphyrolæmus*, and figures of *Cinnyris bifasciatus*, *C. bouvieri*, *C. speratus*, *C. minimus*, *Chalcostetha insignis*, *Cinnyris asiaticus*, *C. porphyrolæmus*, *C. sangirensis*, *C. rhizophoræ*, *C. andamanicus*, *Nectarinia tacaze*.

PART V. SEPTEMBER 22ND, 1877.

Contains descriptions of *Cinnyris sangirensis*, *C. auriceps*, *C. morotensis*, sp. n., *C. nigriscapularis*, *C. salvadorii*, sp. n., *C. proserpinæ*, *C. aspasioides*, *C. aspasiæ*, *C. jobiensis*, *C. mysorensis*, *C. masurensis*, *C. theresæ*, *C. lotenius*, *C. flagrans*, and figures of *Eudrepanis dyerubodei*, *Cinnyris reichenbachii*, *C. sungirensis*, *C. auriceps*, *C. morotensis*, *C. nigriscapularis*, *C. salvadorii*, *C. proserpinæ*, *C. aspasioides*, *C. aspasiæ*, *C. mysorensis*, *C. masurensis*, *C. theresæ*, *C. lotenius*.

PART VI. FEBRUARY 5TH, 1878.

Contains descriptions of *Æthopyga saturata*, *Æ. sanguinipectus*, *Æ. nipalensis*, *Æ. horsfieldi*, *Æ. siparaja*, *Æ. cara*, *Arachnothera longirostra*, *Anthreptes rhodolæma*, sp. n., *A. malaccensis*, *A. celebensis*, sp. n., *A. chlorigastrea*, and figures of *Cinnyris osiris*, *C. erythrocerus*, *C. jugularis*, *C. pectoralis*, *Anthreptes simplex*, *Æthopyga nicobarica*, *Æ. saturata*, *Æ. sanguinipectus*, *Æ. cara*, *Arachnothera longirostra*, *Anthreptes malaccensis*.

PARTS VII. AND VIII. JUNE 25TH, 1878.

Contains descriptions of *Anthreptes phænicotis*, *Nectarinia pulchella*, *Arachnothera magna*, *A. aurata*, *A. modesta*, *A. affinis*, *Æthopyga eximia*, *Cinnyris julia*, *Hedydipna metallica*, *Cinnyris erythrocerus*, *C. osea*, *C. habessinicus*, *C. cruentatus*, *Æthopyga nicobarica*, *Cinnyris acik*, *C. senegalensis*, *C. fuliginosus*, *C. amethystinus*, *C. adelberti*, *C. splendidus*, *Arachnoraphis robusta*, and figures of *Urodrepanis christinæ*, *Anthobaphes violacea*, *Cinnyris grayi*, *Arachnoraphis crassirostris*, *Anthreptes rhodolæma*, *A. malaccensis*, *A. celebensis*, *A. chlorigastrea*, *A. singalensis*, *Nectarinia pulchella*, *Arachnothera magna*, *A. aurata*, *A. modesta*, *A. affinis*, *Cinnyris julia*, *Hedydipna metallica*, *Cinnyris habessinicus*, *C. cruentatus*, *C. acik*, *C. senegalensis*, *C. fuliginosus*, *C. adelberti*, *C. splendidus*, *Arachnoraphis robusta*.

The name *Anthreptes singalensis* on the Plate should be changed into *A. phænicotis*.

PARTS IX. AND X. FEBRUARY 26TH, 1879.

Contains descriptions of *Arachnoraphis flavigastrea*, *Æthopyga bella*, *Cinnyris comorensis*, *Arachnoraphis crassirostris*, *Æthopyga ignicauda*, *Arachnothera chrysogenys*, *Cinnyris solaris*, *C. verticalis*, *C. cupreus*, *Arachnothera flammifera*, *Anthreptes griseigularis*, *Æthopyga vigorsi*, *Cinnyris angolensis*, *C. obscurus*, *C. hartlaubi*, *Anthreptes fraseri*, *Cinnyris souimanga*, *C. venustus*, *C. affinis*, *C. heuglini*, *C. corneliæ*, *C. corinnæ*, *Anthreptes aurantia*, *A. longuemarii*, *Æthopyga temmincki*, *Æ. mystacalis*, *Æ. seheriæ*, *Hedydipna platura*, *Cinnyris zenobia*, *C. coquereli*, *C. aurora*, *Nectarinia bocagii*, sp. n., *Anthreptes anchietæ*, *Eudrepanis dubia*, and figures of *Cinnyris kirkii*, *C. osea*, *Æthopyga siparaja*, *Arachnoraphis flavigastrea*, *Æthopyga bella*, *Cinnyris comorensis*, *Æthopyga ignicauda*, *Arachnothera chrysogenys*, *Cinnyris solaris*, *C. verticalis*, *C. cupreus*, *Arachnothera flammifera*, *Anthreptes griseigularis*, *Æthopyga vigorsi*, *Cinnyris angolensis*, *C. obscurus*, *Anthreptes fraseri*, *Cinnyris souimanga*, *Anthreptes aurantia*, *A. longuemarii*.

PARTS XI. AND XII. FEBRUARY 1880.

Contains description of *Cinnyris oustaleti*, the Introduction, Classification, Geographical Distribution, Literature, and Index, and Plates of *Cinnyris oustaleti*, *Hedydipna platura*, *Nectarinia cupreonitens*, *N. bocagii*, *Æthopyga eximia*, *Æ. nipalensis*, *Æ. horsfieldi*, *Æ. gouldiæ*, *Æ. temmincki*, *Æ. mystacalis*, *Æ. flavostriata*, *Æ. seheriæ*, *Æ. shelleyi* ♀, *Eudrepanis dubia*, *Cinnyris corneliæ*, *C. corinnæ*, *C. aurora*, *C. flagrans*, *C. zenobia*, *C. microrhynchus*, *C. affinis*, *C. venustus*, *C. coquereli*, *C. hartlaubi*, *Anthreptes anchietæ*, *A. rectirostris*, *A. zambesiana*, *A. hypodila*, *Anthreptes tephrolæma*.

CLASSIFICATION.

THE Sun-birds form part of the large group of Honey-suckers, which in their turn constitute an important division of the order Passeriformes or Perching birds. The members of the family Nectariniidæ, as restricted by me in the present work, are birds of small size, graceful in their motions, and extremely active in their habits. The plumage of the males, in most instances, differs strongly from that of the females, and is often of unrivalled brilliancy: the metallic colours blend gradually, and are not so sharply contrasted as in the Humming-birds; but, like these, their plumage throws off an ever changing variety of hues according to the light in which they are viewed.

Their nests are always beautiful structures, and are suspended from the end of a bough or from the underside of a leaf; and, excepting in the case of the *Arachnotherinæ*, the structure is of a lengthened oval form with an entrance at the side near the top, over which is often constructed a projecting portico. Apparently to give to the structure the external appearance of masses of rubbish drifted together by the wind, it is generally partially covered with Coniferous twigs, such as shreds of bark and leaves loosely attached to the surface by cobwebs. Nectariniidæ. A complement of eggs appears rarely to exceed three; but they are often not so many.

The Sun-birds feed principally upon minute insects and the honey from flowers, for sipping which their tongues are admirably adapted.

The wings, feet, and tarsi are moderate in strength and size; and they are not adapted, like the Humming-birds, for poising in front of the flowers to feed; but they cling to them, more after the manner of the Paridæ or Tits.

The following is the classification I propose for this family:—

Family NECTARINIIDÆ.

Bill long, slender, and finely pointed; edges of the mandibles very finely serrated. Nostrils placed in a short oval groove, covered by a membrane opening in a slit. Tongue bifurcated, and supposed to be capable of being rolled up into a double tube. Wing with ten primaries, first generally the shortest, third and fourth the longest. Tail of twelve feathers, very variable in form, but never forked; feathers only moderately stiff, not adapted for climbing. Tarsus moderate, covered with broad scales. Toes moderate, armed with curved and acute claws.

Range. Africa; Madagascar and the neighbouring islands; Palestine; Southern Asia; Sumatra, Java, Borneo, Philippines, Celebes, New Guinea, North Australia, and the Papuan and Moluccan archipelagos. Not found in Europe or North Africa, Northern Asia, nor in any portion of the western hemisphere.

Synopsis of Subfamilies.

- a. First primary longer than the seventh, and cut away on the inner web towards the tip. Sides of the head in adult males wattled *Neodrepanis* *aspasiæ*,
 b. First primary the shortest. No wattles on the sides of the head.
 b'. Form slight and graceful. Metallic colours generally present on adult males *Nectarini*
 c'. Form more robust and heavier. Metallic colours never present *Arremon*

Subfamily I. NEODREPANINÆ.

Sides of the head in adult males with wattles of bare skin. Bill very curved, tapering to a fine and rather flexible point. Wing, first, or cut away on the inner margin towards the tip, which is sharply much shorter than the second, and is longer than the seventh. Tail square and short. *Range.* Confined to Madagascar.

1. NEODREPANIS.

Type.

Neodrepanis, Sharpe, P. Z. S. 1875, p. 76 *N. coruscans*.

Page 1. NEODREPANIS CORUSCANS. Add:—

Neodrepanis coruscans, Hartl. Vög. Madag. p. 94 (1877); Grand. Hist. Nat. Madagascar, pls. 108, 108 a (1879).

Adult Female. No wattles, nor any bare skin on the sides of the head; entire upper parts olive-green with a slight metallic gloss; wings and tail dark brown, all the feathers broadly edged with olive-green; chin, throat, and front of the chest ashy, with the margins of the feathers partially washed with olive or buff, yellow; under the eye a rather well-defined broad buff band; remainder of the head buff, shading into bright yellow on the flanks and under tail-coverts; under surface of the wings with pale inner margins to the quills, and the coverts sulphur-yellow; bill black, brown towards the base of the lower mandible; irides and legs dark brown. Culmen 1·05, wing 1·95, tail 1·0, tarsus 0·5.

My remark upon the absence of metallic colours in the females of the Sun-birds is not quite accurate. They occur in the females of many of the genus *Anthreptes*, and also in *Cinnyris verticalis*. The pale tips to the tail-feathers, so well marked in the type specimens, turns out to be a character of the immature bird only.

Subfamily II. NECTARINIINÆ.

Form slight and graceful. Metallic colours generally present on adult males. Head without wattles or bare skin. Bill very variable in length and curvature. Membrane over nostrils either feathered or bare. First primary shortest. Feathers on the sides of the tail sometimes of a downy texture and sufficient length to cover the rump. Tail very variable in

form, but never forked. Tarsus proportionally longer and weaker than in the *Arachnotherinae*, and, excepting in *Anthreptes*, always dark brown or black.

Ranae. The same as that of the family.

Key to the Genera.

- " males: two centre tail-feathers generally narrower throughout
 than the next pair, and much elongated.
 of the tail square; culmen considerably shorter than the
 The Sun-birds for. 2. *Hedydipna*.
 an important division, the tail square or rounded; culmen not shorter than the
 family Nectariniid. 3. *Nectarinia*.
 in their motions, strongly graduated.
 instances, differ. a yellow band across the rump, and no loose downy feathers
 on the sides of the back capable of covering the rump 4. *Anthobaphes*.
 d". With a yellow band across the rump, and loose downy feathers on
 the sides of the back capable of covering the rump.
 d". With the two central tail-feathers not abruptly narrowing into
 fine points 5. *Æthopyga*.
 e". With the two central tail-feathers abruptly narrowing into fine
 points 6. *Urodrepanis*.
 b. Centre tail-feathers never narrower than the next pair. Tail square,
 rounded, or evenly graduated. (In one species, *Cinnyris erythrocerius*,
 the two central tail-feathers are suddenly compressed and somewhat
 elongated.)
 b'. Keel of the lower mandible never perfectly straight.
 b". With loose downy feathers on the sides of the back capable of
 covering the rump, which is yellow. Tail square 7. *Eudrepanis*.
 c". With no loose downy feathers on the sides of the back; rump
 like the Hum. yellow.
 after the manner of membranes over the nostrils feathered. Tail strongly and evenly
 graduated. Pectoral tufts bright yellow 8. *Chalcostetha*.
 The following membranes over the nostrils either feathered or not. Tail never
 strongly and evenly graduated. Pectoral tufts present or not . . 9. *Cinnyris*.
 c'. Keel of the lower mandible perfectly straight 10. *Anthreptes*.

2. HEDYDIPNA.

Type.

- Hedydipna*, Cab. Mus. Hein. i, p. 101 (1850) *H. metallica*.
Platydydipna, Cab. Mus. Hein. i, p. 101 (1850) *H. platura*.

Bill considerably shorter than the tarsus, proportionally shorter and wider at the base than
 any other member of this family. Tail square, with the two centre feathers in the male much
 elongated, and with their ends rounded and slightly widened.
 Sum. Range. Confined to Western and North-eastern Africa.
 and

Key to the Species.

Entire head, neck, and back of metallic colours; abdomen yellow.

a. Throat metallic green, terminating in a steel-blue collar *metallica*, p. 3.

b. Entire throat metallic green *platura*, p. 7.

3. NECTARINIA.

Type.

Nectarinia, Ill. Prodr. p. 210 (1811) *N. famosa*.

Panæola, Cab. Mus. Hein. i, p. 101 (1850) *N. pulchella*.

Bill not shorter than the tarsus. Tail square or rounded, with the two centre feathers in the male much elongated, with their ends rounded, but not widened.

Range. South, West, and North-east Africa.

Key to the Species.

Entire head, neck, and back of metallic colours; abdomen metallic green or black.

a. Abdomen and general plumage metallic green.

a'. Smaller, centre of the chest scarlet *pulchella*, p. 9.

b'. Larger, no scarlet on the chest.

b''. Greener, no reddish copper shades, and less golden shades . . . *famosa*, p. 13.

c''. Head and neck washed with reddish copper, and with strong golden reflections *cupreonitens*, p. 17.

b. Abdomen black; general plumage coppery or violet-bronze.

b'. Less shaded with steel-blue, head and neck coppery bronze, remainder of the metallic parts lilac *tacazze*, p. 19.

c'. Upper parts and throat shaded with bluish green *boacii*, p. 21.

Page 9. NECTARINIA PULCHELLA. Add:—

Nectarinia caudata, Drapiez, Dict. Class. xv, p. 512 (1829).

Nectarinia pulchella, Bouvier, Cat. Ois. Marche, &c. p. 14 (1875).

Page 13. NECTARINIA FAMOSA. Add:—

Cinnyris famosus, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 504 (1819).

Nectarinia formosa, Bp. Comptes Rendus, 1854, p. 265.

Nectarinia famosa, Licht. Nomencl. Av. p. 55 (1854); Schat. P. Z. S. 1866, p. 22; Sharpe, new edit. Layard's B. S. Afr. p. 306 (1876); Barratt, Ibis, 1876, p. 202; Ayres, tom. cit. p. 425.

Page 21. NECTARINIA BOACII. Add:—

Adult Female. Upper parts pale olive-brown; sides of the head darker, with a broad but somewhat ill-defined buff eyebrow, and a black patch in front of the eye; wings dark brown with pale edges to the feathers, lighter and inclining to olive on the quills: tail-feathers blackish brown, very slightly edged with olive, and the three outer pairs with white tips extending down the margins of the two outer feathers on each

side; entire underparts uniform deep buff, very slightly tinted with olive; under surface of the wings brown with pale inner margins to the quills; under wing-coverts buff, of the same colour as the breast; bill and legs black, the former paler towards the base of the lower mandible; irides dark brown. Total length 6 inches, culmen 1·0, wing 2·7, tail 2·15, tarsus 0·65.

The male and female which I have described are in my own collection, having been kindly presented to me by my friend Professor Barboza du Bocage. The only specimens as yet known have been collected by M. Anchieta, at Caconda, in the interior of Benguela; so that the "*Hab. Angola*" of my previous article upon this species should be changed to Benguela.

It appears to me possible that the *Cinnyris perreini*, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 508 (1819), may refer to this species. It was discovered by Perrein at Malimbe, in the Congo district, and is described as being of the size of *C. amethystinus*, with all the upper parts, as well as the wings, golden green, the underparts black, and the tail graduated. The type no longer exists; so that it is difficult to determine the species to which *C. perreini*, Vieill., really refers.

4. ANTHOBAPHES.

Type.

Anthobaphes, Cab. Mus. Hein. i, p. 103 (1850) *A. violacea*.

Bill longer than the tarsus. Tail very strongly graduated, with the two centre feathers narrow and much elongated and evenly tapering to points. No loose downy feathers on the sides of the back. Pectoral tufts present in the males. Metallic colours confined to the head, neck, mantle, and least series of wing-coverts. Lower back olive.

Range. Cape colony and Little Namaqua Land.

Page 23. ANTHOBAPHES VIOLACEA. Add:—

?*Certhia cinerea*, P. L. S. Müll. S. N. Anhang. p. 98 (1776).

?*Cinnyris aurantia*, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 508 (1819); Less. Man. d'Orn. ii, p. 53 (1828).

Nectarinia cinerea, Drapiez, Dict. Class. xv, p. 510 (1829).

Anthreptes violacea, Licht. Nomencl. Av. p. 56 (1854).

Anthobaphes violacea, Bp. Comptes Rendus, 1854, p. 265; Sharpe, new ed. Layard's B. S. Afr. p. 308 (1876).

The correct spelling for the generic title is *Anthobaphes*.

5. ÆTHOPYGA.

Type.

Æthopyga, Cab. Mus. Hein. i, p. 103 (1850) *Æ. siparaja*.

Aithopyga, Reichb. Handb. Scansoriæ, p. 300 (1854).

Tail very strongly graduated, with the two centre feathers the most elongated and usually pointed, but not abruptly narrowing into fine points. With loose downy feathers on the sides of the back capable of being drawn over the rump, which is always yellow, or has a band of

that colour. Metallic colours confined to the head, neck, upper tail-coverts, and tail; none of the wing-coverts metallic.

Range. Indian, Malay, and Philippine regions.

Key to the Species.

- I. *Eximia group.* Metallic portions confined to the crown and a bar across the middle of the throat. *eximia*, p. 27.
- II. *Metallic-necked group.* Crown, back of the neck, and greater portion of the throat metallic.
 - a. Metallic portions of the plumage green; entire rump yellow.
 - a'. Mantle red; rump rich gamboge-yellow *nipalensis*, p. 29.
 - b'. Mantle olive (sometimes tinted with red); rump pale sulphur-yellow *horsfieldi*, p. 33.
 - b. Metallic portions of the plumage blue or violet; a narrow yellow band across the rump.
 - b'. Chest black *saturata*, p. 35.
 - c'. Chest pale yellow, mottled with scarlet *sanguinepectus*, p. 37.
- III. *Blue-throated group.* Crown and entire throat metallic blue or violet; nape and back of the neck red.
 - a. Upper tail-coverts and edges of the tail-feathers metallic blue or violet.
 - a'. Breast scarlet *dabryi*, p. 39.
 - b'. Breast yellow *gouldiae*, p. 41.
 - b. Upper tail-coverts and entire tail scarlet *ignicauda*, p. 45.
- IV. *Red-throated group.* Throat and mantle red; with metallic blue or violet moustachial bands.
 - a. Tail entirely scarlet *temminckii*, p. 47.
 - b. Tail black, the feathers edged with metallic blue or violet; metallic portion of the crown and the upper tail-coverts blue or violet. Basal half of the feathers of the moustachial band black, forming a narrow inner margin of that colour.
 - b'. A few red feathers on the centre of the forehead. Breast silvery grey. Throat with fine yellow striae, and a well-marked broader streak down the centre of the middle throat *mystacalis*, p. 49.
 - c'. No red feathers on the forehead.
 - c''. Breast nearly black.
 - c'''. Larger. Yellow streaks on the throat nearly obsolete, or entirely absent *magnifica*, p. 51.
 - d'''. Smaller. Throat strongly streaked with yellow *flavostrigatus*, p. 53.
 - d''. Breast dusky ash, slightly tinted with olive.
 - d'''. Bill shorter and weaker *siparaja*, p. 57.
 - e'''. Bill longer and stronger *nicobarica*, p. 61.
 - c. Tail black, the feathers edged with metallic green or violet. Crown and upper tail-coverts metallic green, or green shaded with violet. Moustachial band uniform metallic violet with no black portion of the feathers visible.
 - c'. With no metallic spot on the sides of the head.

- c''*. Crown green, generally strongly shaded with violet. Upper tail-coverts and metallic portions of the tail violet, more or less shaded with green. Breast ashy grey, barely tinted with olive. *cara*, p. 63.
- d''*. Crown, upper tail-coverts, and metallic portions of the tail green, occasionally very slightly tinted with violet. Breast ashy olive. *seheriæ*, p. 67.
- d'*. With a metallic violet spot just behind the ear-coverts. Throat strongly streaked with yellow *vigorsi*, p. 71.
- V. *Yellow-throated group*. . Throat yellow.
- a*. Entire crown metallic. Nape red. No metallic spot on the sides of the head. *shelleyi*, p. 75.
- b*. Front half of the crown metallic, hinder half and the nape olive. A metallic violet spot just behind the ear-coverts *bella*, p. 77.

Page 29. *ÆTHOPYGA NIPALENSIS*. Add:—

- Nectarinia nipalensis*, Gray, Cat. Mamm. & B. Nepal, p. 59 (1846).
- Anthreptes nipalensis*, Licht. Nomencl. Av. p. 56 (1854).
- Æthopyga nipalensis*, Bp. Comptes Rendus, 1854, p. 265; Godwin-Austen, J. A. S. B. xxxix. p. 98 (1870).
- Cinnyris nipalensis*, Blyth, J. A. S. B. xxiv, p. 575 (1855).

Page 35. *ÆTHOPYGA SATURATA*. Add:—

- Æthopyga saturata*, Bp. Comptes Rendus, 1854, p. 265; Godwin-Austen, J. A. S. B. xxxix. p. 98 (1870).
- Cinnyris saturata*, Blyth, J. A. S. B. xxiv, p. 575 (1855).

Page 37. *ÆTHOPYGA SANGUINIPECTUS*. Add:—

- Æthopyga sanguinipectus*, Blyth & Walden, Mamm. & B. of Burma, p. 142 (1875); Hume & Davison, Str. F. vi, 1878, p. 182.

According to Messrs. Hume and Davison this species is “confined apparently in Tenasserim to the higher portions of Mooleyit and Karennee.”

“I only observed this species,” writes Mr. Davison, “on the higher slopes of Mooleyit, not below 3000 feet elevation. It is a forest bird, frequenting flowering trees, with much the same habits as *Æ. cara*, not nearly so shy as *Æ. dabryi*, and much more given to settling quietly. Where I met with it it was moderately common.”

Page 39. *ÆTHOPYGA DABRYI*. Add:—

- Æthopyga abrii*, David, N. Arch. Mus. vii, p. 8 (1871).
- Æthopyga debrii*, Blyth & Walden, Mamm. & B. Burma, p. 141 (1875).
- Æthopyga dabryi*, Hume, Str. F. v, p. 272 (1877); David & Oust. Ois. Chine, p. 80, pl. 11 (1877); Hume & Davison, Str. F. vi, p. 180 (1878); Anders. Anat. & Zool. Research. Yunnan Exped. p. 662 (1878).

According to Messrs. Hume and Davison this species is "confined in Tenasserim, so far as yet known, to the summit of Mooleyit and the higher portions of Karennee."

Mr. Davison only met with this beautiful species in one locality; and that was near the summit of Mooleyit. "I never observed it," he writes, "much below an elevation of 6000 feet. It was frequenting a number of large flowering forest-trees, at that time covered with masses of red bell-like blossoms. Its habits were precisely those of all the *Æthopygas*. Even at Mooleyit it was decidedly rare, and I myself only succeeded in shooting four males and one female; but I saw, perhaps, a dozen more. They were very difficult to procure, because they did not permanently hang about the trees on whose nectar they were feeding, but suddenly emerged from the surrounding deep forest, in which it was quite impossible to see or find them, would appear about one of the blossoming trees, hover about it for a few seconds, and then dart away. This was in February; and on dissection they exhibited no signs of breeding."

Mr. Anderson records it from Blamô, Shitee Neru, and Ponsec.

Page 41. *ÆTHOPYGA GOULDIE*. Add:—

?*Cinnyris subflavus*, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 494 (1819); Less. Man. d'Orn. ii, p. 35 (1828).

?*Nectarinia subflava*, Drapiez, Dict. Class. xv, p. 509 (1829).

Cinnyris gouldia, Warlow, J. A. S. B. i, p. 320 (1832).

Æthopyga gouldia, Bp. Comptes Rendus, 1854, p. 265; Blyth & Walden, Mamm. & B. Burma, p. 141 (1875).

Nectarinia gouldia, Schl. Handl. Dierk. p. 256 (1857).

Page 47. *ÆTHOPYGA TEMMINCKI*. Add:—

Cinnyris temmincki, Beccari, Ann. Mus. Civ. Genova, xiii, p. 453 (1878).

Æthopyga temmincki, Salvad. Ann. Mus. Civ. Genova, xiv, p. 213 (1879).

Dr. Beccari collected four specimens in the Singalan Mountains, in Western Sumatra, in June and July.

Page 51. *ÆTHOPYGA MAGNIFICA*. Add:—

Æthopyga magnifica, Tweed. P. Z. S. 1877, p. 763; 1878, p. 287.

Mr. A. H. Everett has collected specimens on the island of Zebu, and at Valencia, the southern point of Negros; one from the latter locality has the yellow rump mottled with scarlet.

Count Salvadori informs me that his *Æthopyga*, sp.? (Ibis, 1865, p. 549), should be referred to *Æ. flavostriata*.

Page 53. *ÆTHOPYGA FLAVOSTRIATA*. Add:—

Æthopyga, sp.?, Salvad. Ibis, 1865, p. 549.

Æthopyga flavostriata, Salvad. Atti R. Acc. Torino, xii, p. 314 (1877); Meyer, Ibis, 1879, p. 132.

Æthopyga beccarii, Salvad. Atti R. Acc. Torino, xii, p. 315 (1877).

Page 57. *ÆTHOPYGA SIPARAJA*. Add:—

Æthopyga siparaja, Bp. Comptes Rendus, 1854, p. 265 (1854); Salvad. Ann. Mus. Civ. Genova, xiv, p. 212 (1879); Sharpe, P. Z. S. 1879, p. 342; id. Ibis, 1879, p. 260.

Æthopyga eupogon, Bp. Comptes Rendus, 1854, p. 265.

Nectarinia siparaja, Brügg. Abhand. Ver. Bremen, v, p. 458 (1877).

Count Salvadori records a specimen from Sumatra which has the abdomen shaded with olive, probably a very similar variety to the one I mention from Sibü, in Borneo.

In my original article I employ the title *Æthopyga miles* for *Æ. seheriæ*, and omit to mention that Mr. Moore, of the East-India Museum, London, kindly allowed me to examine the original drawing from which Sir Stamford Raffles described his *Certhia siparaja*: it is a well-executed painting; and there can be no doubt as to the species it represents.

I was wrong in supposing that this species does not inhabit Java; for we are informed by Count Salvadori that Sig. G. B. Ferrari has sent several adult males from that island to the Genoa Museum.

In Borneo, according to Mr. Treacher, its native name is "Suit merah." Mr. Sharpe, writing on the birds of Labuan, informs us:—"Two sets, consisting of two and six eggs respectively, are sent by Mr. Low. These are most beautiful, the ground-colour being of a pinky flesh-colour, deepening into richer rufous at the obtuse end, and sparingly spotted and scrawled with dark brown. The two eggs sent by themselves are more uniformly blotched with reddish, the spots being more sparingly distributed; axis 0·55 inch, diam. 0·45."

Page 63. *ÆTHOPYGA CARA*. Add:—

Æthopyga cara, Hume & Davison, Str. F. vi, p. 179 (1878).

Page 67. *ÆTHOPYGA SEHERIÆ*. Add:—

Æthopyga seheriæ, Ball, Str. F. vii, p. 208 (1878).

Æthopyga miles, Anders. Anat. & Zool. Research. Yunnan Exped. p. 661 (1878).

Dr. Anderson refers to this species specimens collected during the Yunnan expedition at Sawady and Bhamô. I have examined two adult specimens obtained by Dr. Anderson at Sawady, and now in the British Museum; and they seem to be true *Æ. seheriæ*.

Page 71. *ÆTHOPYGA VIGORSI*. Add:—

Æthopyga vigorsi, Davison & Wenden, Str. F. vii, p. 79 (1878).

Page 75. *ÆTHOPYGA SHELLEYI*. Add:—

Æthopyga shelleyi, Sharpe, Tr. Linn. Soc. 2nd ser. Zool. i, p. 343; Tweedd. P. Z. S. 1878, p. 621.

Adult Female. Upper parts olive-green as well as the least and median series of wing-coverts; forehead and

crown inclining to ashy brown; a triangular patch of feathers in front of the eyes dark brown; cheeks white; ear-coverts and sides of the neck ashy olive; remainder of the wings dark brown, the quills and greater coverts broadly edged with golden olive; tail dark brown broadly edged with golden olive, and with pale ends to all but the centre feathers; underparts white slightly tinted on the front of the chest with yellowish ash-colour, and with pale yellow down the centre of the breast, brightest on the abdomen and under tail-coverts; under surface of the wings brown with the inner margins of the quills and the coverts white, the latter slightly tinted with yellow; bill, legs, and irides dark brown.

Since I wrote my original article upon this species I have examined in the late Marquis of Tweeddale's cabinet four adult males and the female above described, all collected by Mr. Everett at Puerto Princesa, on the island of Palawan. The metallic parts in the male are rather green than blue, excepting in certain lights; and the flanks are white.

6. URODREPANIS.

Type.

Urodrepanis, Shelley, Monogr. Sun-birds, part 1 (1876) *U. christinae*.

Similar to *Æthopyga*, but with the two central tail-feathers abruptly narrowing into fine points.

Hab. Island of Hainan.

U. christinae, p. 79.

7. EUDREPANIS.

Type.

Eudrepanis, Sharpe in Shelley, Monogr. Sun-birds, part iii (1877) *E. pulcherrima*.

With tufts of downy feathers on the sides of the back capable of covering the rump, which is bright yellow. Tail short and square. Least and median series of wing-coverts usually of metallic colours.

Range. Philippine archipelago and Sanghir Islands.

Sumatra, in

Key to the Species.

a. Portion of the wing-coverts metallic.

a'. Entire crown metallic green, back and sides of the head and neck red

b'. Front half of the crown, cheeks, and ear-coverts steel-blue; back of the crown, back, and sides of the neck olive

b. With no portion of the plumage metallic

low rump mottled with scarlet.

(65, p. 549), should be referred

Page 81. EUDREPANIS DUYVENBODEI. Ad

Æthopyga duyvenbodei, Salvad. Atti R. Acc. Torino, xii, p. 1 |:—

8. CHALCOSTETHA.

Type.

Chalcostetha, Cab. Mus. Hein. i. p. 103 (1850) *C. insignis*.

Membrane covering the nostrils feathered. Tail rather long, strongly and evenly graduated; two centre feathers of the same form as the others, and but slightly longer than the next pair. No loose downy feathers on the sides of the back. Pectoral tufts yellow.

Range. Malay region.

Page 87. CHALCOSTETHA INSIGNIS. Add:—

Nectarinia pectoralis, Drapiez, Dict. Class. xv, p. 513 (1829).

Anthreptes chalcostetha, Lich. Nomencl. Av. Mus. Berol. p. 56 (1854).

Chalcostetha pectoralis, Bp. Comptes Rendus, 1854, p. 265.

Chalcostetha insignis, Hume, Str. F. iii, p. 319 (1875); Sharpe, Ibis, 1877, p. 17; Tweedd. tom. cit. p. 302; id. P. Z. S. 1878, p. 621; Hume & Davison, Str. F. vi. p. 183 (1878); Sharpe, Ibis, 1879, p. 260; id. P. Z. S. 1879, p. 342.

Nectarinia insignis, Brügg. Abhandl. nat. Ver. Bremen, v, p. 465.

According to Messrs. Hume and Davison it is "a rare straggler to the extreme south of the province of Tenasserim, but perhaps extending somewhat further north amongst the islands of the Mergui archipelago. We only procured a single pair of this species in Tenasserim, a male at Malewoon, in April, a female at Patoe Island, in the Mergui harbour, in November."

Mr. E. C. Buxton procured it at Lampong, in South-eastern Sumatra.

In Borneo, according to Mr. Treacher, its native name is "Suit Tongjong."

In January 1878 Mr. Everett collected an adult male at Puerto Princesa, on the island of Palawan, thus extending its range to the Philippine Islands. The late Marquis of Tweeddale kindly lent me this very fine specimen to examine; it measures—total length 5·1 inches, culmen 0·7, wing 2·35, tail 2·05, tarsus 0·6. It is perfectly identical in plumage with Malacca specimens.

Æthopyg

9. CINNYRIS.

Type.

Æthopyg

iris, Cuv. Règne Anim. i. p. 412 (1817) *C. splendidus*.

na, Cab. Mus. Hein. i. p. 104 (1850) *C. hasselti*.

Dr. Andersson, Cab. tom. cit. p. 105 *C. jugularis*.

Sawady and Bhannu, Cab. tom. cit. p. 105 *C. lotenius*.

Sawady, and now in the B. Handb. Scansoriæ, p. 277 (1854) *C. amethystinus*.

cit. p. 280 *C. hasselti*.

Page cit. p. 283 *C. superbus*.

Æthopyga vigorsi, Davison, p. 284 *C. cupreus*.

cit. p. 285 *C. notatus*.

Hein cit. p. 285 *C. aspasie*.

Cyanomitra, Page cit. p. 291 *C. verticalis* ♂.

Elæocerthia, Reichb. tom. cit. p. 291 *C. verreauxi*.

Carmelita, Reichb. tom. cit. p. 296 *C. fuliginosus*.

Leucochloridia, Reichb. tom. cit. p. 312 *C. verticalis* ♀.

Adelinus, Bp. Compt. Rend. 1854, p. 265 *C. verreauxi*.

Keel of the lower mandible never perfectly straight, but always more or less decurved towards the tip. Membrane over the nostrils either feathered or bare. No loose downy feathers on the sides of the back. Tail square, or slightly rounded, and in one instance (*C. erythrocerius*) with the two centre feathers abruptly narrowing into elongated tails; with this exception no portion of the central tail-feathers is narrower than the next pair.

Range. The same as the family.

Key to the Groups and Species.

1. *Black or Hermitia group.* Membrane over the nostrils feathered.
General plumage black. Pectoral tufts absent. Metallic colours confined to the crown, scapulars, wing-coverts, lower back, margins of the tail-feathers, and the throat. Bill and tail proportionally longer than in the next group.
 - a. Metallic portions of the wings and lower back blue.
 - a'. Throat and lower back of different colours. Sides of the metallic throat of a different colour from that of the centre.
 - a". Mantle and chest red *grayi*, p. 91.
 - b". Mantle and chest black.
 - b"". Throat lilac *porphyrolæmus*, p. 95.
 - c"". Throat copper-colour *sangirensis*, p. 97.
 - b'. Throat and lower back of the same colour. Entire throat uniform in colour.
 - b". Crown more golden. Steel-blue portions strongly shaded with violet *auriceps*, p. 99.
 - c". Crown less golden. Steel-blue portions greener, with no violet shade *morotensis*, p. 101.
 - b. Metallic portions of the wings and lower back green (often strongly glossed with blue).
 - b'. Throat blue or lilac.
 - b". Scapulars and median series of wing-coverts black.
 - b"". Portion only of the least series of wing-coverts surrounding the angle of the wing metallic.
 - b"". Smaller *nigriscapularis*, p. 103.
 - c"". Larger *salvadorii*, p. 105.
 - c". All the least series of wing-coverts metallic *proserpinæ*, p. 107.
 - c'. Scapulars and median series of wing-coverts metallic.
 - c". Crown metallic green.
 - c"". Metallic portions of the wings and lower back less shaded with blue *aspasiæ**, p. 113.

**C. aspasiæ* may be divided into the following subspecies:—

1. Female duller.
2. Larger.
 3. Throat steel-blue with no lilac shade *aspasioides*, p. 109.
 - 3'. Throat lilac with no steel-blue shade *corneliæ*, p. 111.
- 2'. Smaller. Throat lilac, or steel-blue shaded with lilac *aspasiæ*, p. 113.
- 1'. Female brighter. Throat steel-blue barely glossed with lilac *corinnæ*, p. 117.

- d'''*. Metallic portions of the wings and lower back strongly
 - glossed with blue.
- d''''*. Metallic portion of the throat longer and rounded off on the front of the chest *mysorensis*, p. 119.
- e''''*. Metallic portion of the throat shorter, and abruptly ending in a straight line *jubiensis*, p. 121.
- d'''*. Crown golden *maforensis*, p. 123.
- c'*. Throat green *theresæ*, p. 125.
- II. *Nectarophila group*. Membrane over the nostrils not always feathered. Non-metallic parts rarely black. Metallic colours confined to the same parts as in the last group. Bill and tail short.
 - a*. Membrane covering the nostrils feathered.
 - a'*. Scapulars metallic. Mantle black *hasselti*, p. 127.
 - b'*. Scapulars not metallic. Mantle red. Rump green.
 - b''*. Chest scarlet *speratus*, p. 131.
 - c''*. Chest yellow *juliæ*, p. 135.
 - b*. Membrane covering the nostrils bare. Scapulars not metallic. Rump not green.
 - b'*. Mantle brown. Rump violet-shaded steel-blue *zeylonicus*, p. 137.
 - c'*. Mantle red. Rump bright red, strongly washed with metallic lilac *minimus*, p. 143.
- III. *Cyrtostomus or Olive-backed Asiatic group*. In this and the following groups the membrane covering the nostrils is always bare. Upper parts olive; breast yellow, orange-red, or black; metallic colours confined to the crown, throat, and upper tail-coverts.
 - a*. Throat not metallic, upper tail-coverts metallic. *flagrans*, p. 147.
 - b*. Throat metallic, upper tail-coverts olive.
 - b'*. Under surface of the body yellow.
 - b''*. Pectoral tufts not darker than the chest.
 - b'''*. No yellow eyebrow nor loral band. Sides of the throat shaded with green.
 - b''''*. Entire chest chrome yellow. Forehead always steel-blue . *aurora*, p. 149.
 - c'''*. Chest gamboge-yellow, occasionally shaded about the middle with chrome-yellow. Forehead rarely metallic, but often slightly tinted with steel-blue *jugularis*, p. 151.
 - c''*. Eyebrow and loral band yellow. Sides of the throat not shaded with green *frenatus*, p. 153.
 - c''*. Pectoral tufts darker than the chest.
 - c'''*. With a non-metallic maroon-and-black collar.
 - c''''*. Forehead not metallic.
 - c'''''*. Sides of the throat shaded with green. Pectoral tufts uniform gamboge-yellow. Breast paler. Bill longer. *andamanicus*, p. 157.
 - d''''*. Sides of the throat steel-blue, not shaded with green. Pectoral tufts red and yellow. Breast darker. Bill shorter *flammaxillaris*, p. 161.
 - d''''*. Forehead metallic *rhizophoræ*, p. 163.
 - d''*. With no non-metallic collar. Forehead metallic *pectoralis*, p. 165.

- c'*. Under surface of the body orange-red or black.
- c''*. Breast orange-red *solaris*, p. 171.
- d''*. Breast black *zenobia*, p. 173.
- IV. *Cinnyris* or *Dark Metallic group*. Entire head, neck, and back of metallic colours. Abdomen black or dark brown.
- a*. Back bronze, shaded with violet and green.
- a'*. Abdomen brown *lotenius*, p. 177.
- b'*. Abdomen black *asiaticus*, p. 181.
- b*. Back copper-colour *cupreus*, p. 191.
- c*. Back golden green.
- c'*. Chin and middle of the throat the same colour. Pectoral tufts, when present, uniform yellow or scarlet.
- c''*. With no red pectoral band. Larger.
- c'''*. Chest black *notatus*, p. 195.
- d'''*. Chest red.
- d''''*. Entire throat violet. No pectoral tufts *superbus*, p. 197.
- e''''*. Upper half of the throat green. Pectoral tufts yellow . . . *johannæ*, p. 199.
- d''*. With a red pectoral band. Smaller.
- d'''*. Pectoral tufts sulphur-yellow.
- d''''*. Throat violet *splendidus*, p. 201.
- e'''*. Throat green *habessinicus*, p. 205.
- e''*. Pectoral tufts absent.
- e'''*. Tail graduated, with the two centre feathers much elongated *erythroceris*.
- f'''*. Tail square.
- f''''*. S. Africa. Total length 5·1 inches, culmen 0·85 to 1, wing 2·7, tail 2·1, tarsus 0·70 *mariquensis*, p. 211.
- g''''*. N.E. Africa. Total length 4·7 to 5·1 inches, culmen 0·65 to 0·70, wing 2·6, tail 2·0, tarsus 0·65 *osiris*, p. 215.
- h''''*. W. Africa. Total length 4·6 inches, culmen 0·75, wing 2·4, tail 1·64, tarsus 0·65 *bifasciatus*, p. 217.
- i''''*. E. Africa. Total length 4·2 inches, culmen 0·60, wing 2·1, tail 1·60, tarsus 0·55 *microrhynchus*, p. 219.
- f'''*. Pectoral tufts scarlet. *comorensis*, p. 221.
- d'*. Chin blue, middle of the throat green. Pectoral tufts yellow, mottled with scarlet.
- d''*. Abdomen black *osea*, p. 223.
- e''*. Abdomen brown *bouvieri*, p. 227.
- V. *Pale metallic group*. Entire head, neck, and mantle of metallic colours. Abdomen pale, never black or dark brown. Tail square.
- a*. Entire head not uniform green.
- a'*. Abdomen white.
- a''*. Pectoral tufts uniform sulphur-yellow *leucogaster*, p. 229.
- b''*. Pectoral tufts scarlet and yellow.
- b'''*. With a partial narrow red collar *oustaleti*, p. 231.
- c'''*. With no signs of a red collar *albiventris*, p. 233.
- b'*. Abdomen buff or yellow.

- b''*. Smaller. Abdomen and thighs buff *venustus*, p. 235.
- c''*. Larger. Abdomen yellow. Thighs brown.
 - c'''*. Smaller *affinis*, p. 239.
 - d'''*. Larger *fazoqlensis*, p. 241.
- b*. Entire head uniform green.
 - b'*. With no non-metallic pectoral band *coquerelli*, p. 243.
 - c'*. With a broad non-metallic pectoral band.
 - c''*. Pectoral band maroon-brown and black *souimanga*, p. 245.
 - d''*. Pectoral band bright scarlet. Abdomen ashy brown.
 - d'''*. Larger. With a narrow steel-blue collar. Abdomen not shaded with olive.
 - d''''*. Larger. Scarlet pectoral band broader *afer*, p. 249.
 - e''''*. Smaller. Scarlet pectoral band narrower *chalybeus*, p. 253.
 - e'''*. Smaller. With no steel-blue collar. Abdomen shaded with olive *chloropygius*, p. 257.

VI. *Chalcomitra* or *Dark-brown group*. General colouring dark brown.

Metallic colours confined to the crown, least series of wing-coverts, rump, and throat.

- a*. Lower throat and front of the chest scarlet.
 - a'*. Chin and upper throat black *cruentatus*, p. 259.
 - b'*. Chin and upper throat metallic green.
 - b''*. With a metallic violet patch on the least series of wing-coverts . *gutturalis*, p. 261.
 - c''*. With no metallic spot on the wings.
 - par' ". Wings and tail darker: dark brown *acik*, p. 265.
 - d'''*. Wings and tail paler: cinnamon brown *senegalensis*, p. 267.
- b*. With no scarlet on the throat or on the front of the chest.
 - b'*. Throat metallic lilac.
 - b''*. Crown green.
 - b'''*. Larger. Upper tail-coverts metallic lilac *amethystinus*, p. 269.
 - c'''*. Smaller. Upper tail-coverts dark brown like the back . . . *kirkii*, p. 273.
 - c''*. Front half of the crown metallic lilac *fuliginosus*, p. 275.
 - d''*. Throat metallic green *angolensis*, p. 279.
 - d'*. Upper throat black, lower throat buff *adelberti*, p. 281.

VII. *Adelinus* or *Submetallic group*. Metallic colours confined to the edges of the feathers of the upper parts, throat, and front of the breast, giving only a partial metallic appearance.

- a*. Head, neck, and mantle very dark brown, glossed with bronze. Abdomen white. Pectoral tufts orange *fuscus*, p. 285.
- b*. Upper parts olive, glossed with metallic green. No metallic gloss on the underparts, which are pale ashy. Pectoral tufts scarlet . . . *verreauxi*, p. 287.

VIII. *Cyanomitra* or *Olive group*. General colouring olive. Metallic colours confined to the head and neck.

- a*. No portion of the plumage metallic. Pectoral tufts yellow.
 - a'*. Darker. Beneath pale olive. Pectoral tufts gamboge-yellow . . *olivaceus*, p. 289.
 - b'*. Paler. Beneath ashy white, shaded with olive. Pectoral tufts sulphur-yellow *obscurus*, p. 291.
- b*. Throat metallic. Cheeks and ear-coverts not metallic.

- b*. Crown not metallic.
b". Pectoral tufts orange *dussumieri*, p. 293
c". Pectoral tufts absent *hartlaubi*, p. 295.
c'. Crown metallic *cyanolæmus*, p. 297.
o. Entire head and throat metallic.
c'. Metallic parts indigo-bronze, shaded with violet *reichenbachii*, p. 299.
d'. Metallic parts bluish green *verticalis* ♂, p. 301.
d. Cheeks, ear-coverts, and upper half of the head metallic green; under-
 parts ashy white *verticalis* ♀, p. 301.

Page 91. CINNYRIS GRAYI. Add:—

Nectarophila grayi, Meyer, Ibis, 1879, p. 132.

Page 95. CINNYRIS PORPHYROLÆMUS. Add:—

Chalcostetha porphyrolæma, Meyer, Ibis, 1879, p. 131.

Page 99. CINNYRIS AURICEPS. Add:—

Nectarinia auriceps, Brügg. Abhandl. nat. Ver. Bremen, v, p. 465 (1877).

Dr. Finsch has kindly informed me that he has examined an adult male of this specie collected by Dr. Bernstein on the island of Halmahera.

Nectarinia porphyrolæma, Brügg., should be erased from the synonymy.

Page 109. CINNYRIS ASPASIOIDES. Add:—

Hermotimia aspasioides, Salvad. P. Z. S. 1878, p. 81.

Page 113. CINNYRIS ASPASIÆ.

Chalcostetha aspasia, Bp. Comptes Rendus, 1854, p. 265.

Nectarinia aspasia, Schl. Handl. Dierk. p. 256 (1857); D'Albertis, Ibis, 1877, p. 367.

Hermotimia aspasia, Salvad. Ann. Mus. Civ. Genova, x, p. 89 (1877).

Cinnyris aspasiæ, Ramsay, Trans. Linn. Soc. New S. Wales, iii, p. 288 (1878).

Mr. Morton procured specimens at Port Moresby and along the Laloke river, which Mr. Ramsay identifies as belonging to this species.

Page 117. CINNYRIS CORINNÆ. Add:—

Nectarinia aspasia, Sclat. P. Z. S. 1878, p. 289; Finsch, P. Z. S. 1879, p. 10.

Hermotimia corinna, Salvad. Ibis, 1879, p. 106.

Page 121. CINNYRIS JOBIENSIS. Add:—

Hermotimia jobiensis, Salvad. Ann. Mus. Civ. Genova, p. 400 (1876).

Page 127. CINNYRIS HASSELTII. Add:—

Anthreptes hasseltii, Licht. Nomencl. Av. p. 56 (1854).

Leptocoma hasseltii, Bp. Comptes Rendus, 1854, p. 265; Bouvier, Bull. Soc. Zool. France, 1877, p. 300.

Nectarinia hasseltii, Schl. Handl. Dierk. p. 256 (1857).

Nectarophila brasiliانا, Stoliczka, J. A. S. B. xxxix, p. 300 (1870).

Nectarophila hasseltii, Blyth & Walden, Mamm. & B. Burma, p. 142 (1875); Sharpe, Ibis, 1877, p. 18; Tweedd. tom. cit. p. 302.

Cinnyris brasilianus, Hume, Str. F. v, p. 271 (1877).

Leptocoma brasiliانا, Hume & Davison, Str. F. vi, p. 184 (1878).

Cinnyris hasseltii, Sharpe, P. Z. S. 1879, p. 342; id. Ibis, 1879, p. 264.

Mr. Oates, who has kindly presented me with specimens of the bird and the nest from Lower Pegu, informs me that it is not uncommon in that district. In Sumatra, again, it appears to be a common species; for the late Mr. E. C. Buxton collected many specimens in the Lampong district.

Page 131. CINNYRIS SPERATUS. Add:—

Red-breasted Creeper, var. B, Iath. Gen. Syn. B. p. 708 (ex Sonn. pl. 30. fig. D, 1781).

Nectarinia sperata, Drapiez, Dict. Class. xv, p. 511 (1829).

Nectarinia coccinigastra, Drapiez, tom. cit. p. 512.

Anthreptes sperata, Licht. Nomencl. Av. p. 56 (1854).

Leptocoma sperata, Bp. Comptes Rendus, 1854, p. 265.

Nectarophila sperata, Tweedd. P. Z. S. 1877, p. 830; id. P. Z. S. 1878, pp. 112, 286, 343, 620.

Mr. A. H. Everett, in his late collections from the Philippine Islands, has sent this species home from Leyte Island, Valencia (at the southern extremity of Negros), from the islands of Dinagat and Nipah, and from Butuan river, Placer, and Surigao in the north-east of Mindanao, and from Puerto Princesa on the island of Palawan.

All these specimens were kindly lent to me by the late Marquis of Tweeddale; and all the males collected from May to September are in full plumage, while many of those collected in Palawan in December and January are in imperfect plumage, which shows that this species has a dull winter dress, which I believe not to be the case with *C. hasseltii* and *C. zeylonicus*. Out of this large series there are many in dull plumage, the sexes of which are difficult to determine, as it appears to me that Mr. Everett has sexed them nearly all females, probably without examination.

a. Nestling, not labelled (total length 2·65 inches, culmen 0·35, wing 1·5, tail 0·5, tarsus 0·5), similar in plumage to

b. "Dinagat, ♀, June 1877: bill black, mandible brown, legs black, iris dark brown." Upper parts deep olive, including the least and median series of wing-coverts; remainder of the wings dark brown with rufous yellow edges to the feathers; tail black, a few of the feathers with white tips and with rufous-olive edges, a broad dusky band through the eye; eyelids sulphur-

yellow; a broad, rather indistinct, pale eyebrow; cheeks, throat, and entire under surface of the body pale-olive-shaded yellow, brightest on the lower chest and abdomen; under surface of the wings dark brown with the inner margins of the quills and the coverts white, the latter tinted with yellow. Total length 3·5 inches, culmen 0·5, wing 1·9, tail 1·2, tarsus 0·5. This plumage I should refer to the immature bird, possibly of both sexes.

c. "Valencia, ♀, August 1877." Differs from *b* only in the upper parts of the head and neck being slightly more dusky, and in the bill being slightly longer and stronger. Culmen 0·6. This I consider to be the more advanced stage of the young bird, possibly of either sex.

d. "Dinagat, sex?, June 1877: iris dark brown, bill black, legs dark brown." Upper parts more ashy brown, with scarcely any shade of olive; underparts, cheeks, and eyebrow ashy white; centre of the breast tinted with yellow. The feathers in this specimen are much worn. This stage of plumage is possibly due to its being a hen bird which has just gone through the labours of incubation.

e. "Surigao, ♀, May 1877." Differs from *a* in the upper half of the head and back of the neck being ashy, not shaded with olive, the sides of the head paler and greyer, and the throat ashy white. This I presume to be the female in fully adult plumage. It agrees well with the adult female which I previously described and figured from the collection made by Dr. Steere in Luzon.

f. "Valencia, ♀, August 1877." Similar to the last, excepting that the back of the neck and sides of the head are shaded with olive, and a few feathers on the front of the chest tinged with scarlet. This plumage I presume to belong to the young male or adult male in full moult.

g. "Puerto Princesa, ♀, 27th December 1877." Similar to *a*, excepting that some of the feathers of the upper back and scapulars are shaded with rufous; margins of the wing-feathers more strongly shaded with rufous; centre of the chest and abdomen darker, and brighter yellow.

h. "Dinagat, ♂, June 1877." Perfectly similar in plumage to the last. Males, probably young.

I consider that *e* is the full adult female; *d*, adult female after breeding; *a*, *b*, and *c*, young, possibly of either sex; *f*, *g*, and *h*, young males.

In fully plumaged adult males the abdomen and under tail-coverts are of a dusky-olive. These parts are generally shaded or mottled with olive-yellow, which I believe to be due to the last remains or approach of the moult: in some of these specimens the crown is more or less strongly shaded with fiery copper; and in such specimens the lower back and upper tail-coverts are generally more strongly shaded with lilac.

In two specimens labelled "♂, Puerto Princesa, January 1878," in partial moult, the crown and nape are ashy brown, and the back and scapulars are mottled with that colour; the sides of the throat and the sides of the upper chest mottled with ashy white, and the abdomen and under tail-coverts are bright olive-yellow. In these specimens the metallic feathers which mottle the crown are of a fiery copper-colour, and the lower back and upper tail-coverts are very strongly glossed with lilac, but not to an equal extent; and in one specimen the throat is rather bluer than in the other.

Page 135. CINNYRIS JULIÆ. Add:—

Nectarophila juliæ, Tweedd. P. Z. S. 1878, p. 951.

Mr. A. H. Everett, while on the island of Mindanao, collected a large series of specimens at Zamboanga in April. Most of the males agree perfectly with my description and figures; but many have the sides and back of the neck next to the ear-coverts and the nape washed with olive. The description of the adult female agrees with the specimens before me; but in the illustration the green shade is a little too intense on the head and underparts. A young male and a young female, so labelled by Mr. Everett, are both perfectly similar in plumage to the adult female, but have the gape orange.

Young Male in about half moult. Upper parts, including the least and median series of wing-coverts, ashy brown; remainder of the wings as in the adult; a few metallic feathers on the crown and least series of wing-coverts; sides of the neck and the upper back mottled with red, lower back and upper tail-coverts metallic green glossed with lilac; tail brownish black with broad pale ends to some of the outer feathers; sides of the head ashy; chin and throat white shaded with buff on the sides of the upper throat; breast bright yellow; under tail-coverts paler.

Page 137. CINNYRIS ZEYLONICUS. Add:—

Certhia zeylonica, Shaw, Gen. Zool. viii, p. 203 (1811).

Cinnyris zeylonicus, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 507 (1819); Hume, Str. F. v, p. 270 (1877); Fairbank, tom. cit. p. 398; Davison & Wenden, Str. F. vii, p. 79 (1878); Cripps, tom. cit. p. 267; Legge, B. Ceylon, p. 569 (1879).

Nectarinia nigralba, Drapiez, Dict. Class. xv, p. 510 (1829).

? *Cinnyris lepida*, Sykes, J. A. S. B. iii, p. 543 (1834).

Anthreptes zeylonica, Licht. Nomencl. Av. p. 56 (1854).

Leptocoma zeylonica, Bp. Comptes Rendus, 1854, p. 265; Beavan, Ibis, 1865, p. 232; Fairbank, Str. F. iv, p. 256 (1876); Ball, Str. F. vii, p. 208 (1878).

Nectarinia zeylonica, Hartl. J. f. O. 1859, p. 292.

Mr. Hume (Str. F. 1877, p. 270) writes with regard to the distribution of this species:—
“It may be generally stated that this species is confined to Ceylon, Southern and Eastern India. It does not occur, so far as we know, in Sindh, Kutch, Kattiawar, Rajpootana, the Punjab, the North-west Provinces, Oudh, Behar, the Central India Agency, nor in the major portions of the Central Provinces, though in these latter it has been observed occasionally near Chanda, and is common in the Rajpoot and Sumbulpoot districts. It does not extend into any part of British Burmah. It is normally a bird of the heavier rainfalls and better-wooded provinces, though it certainly occurs in the comparatively dry uplands of the Deccan. It never ascends any of the mountain ranges, to the best of our belief, to any considerable elevation, but is essentially a bird of the plains country. With this reservation its range may be said to include Ceylon, Travancore, Cochin, the whole Madras Presidency, Mysore, Hyderabad, the Bombay Presidency south of the 20th degree N. lat., the southern portions of Berar and the Central Provinces to about the same

latitude, Rajpoot and the eastern states of these provinces, Orissa, the Tributary Mehals, Chota Nagpoot and Lower Bengal west of the Burrumpooter. I have never yet seen it from any of the districts east of this, *e. g.* Chittagong, Cachar, Tipperah, or Sylhet, though at Dacca, immediately west of the river, it is common. Nor have I seen it from Assam, though said to occur there, and though Godwin-Austen records a specimen from the Khasya hills."

Page 143. CINNYRIS MINIMUS. Add:—

Cinnyris minimus, Sykes, J. A. S. B. iii, p. 543 (1834); Fairbank, Str. F. v, p. 398 (1877);

Legge, B. Ceylon, p. 572 (1879).

Nectarinia minuta, Kelaart, Prodrumus, Cat. p. 119 (1852).

Leptocoma minima, Hume, Nests & Eggs Ind. B. i, p. 150 (1873); Fairbank, Str. F. iv, p. 392 (1876).

The limits of its distribution in Ceylon, according to Captain Vincent Legge, appear to be very uncertain. The nest, Mr. Davison informs us, "is suspended to a twig about four or five feet from the ground; it is similar, both in shape and materials, to that of *Leptocoma zeylonica*, but considerably smaller. They lay two eggs." The latter are described by Mr. Hume as "perfect miniatures of some of the eggs of *Arachnechthra asiatica*; in shape they are somewhat elongated ovals, a good deal compressed towards one end. They have scarcely any gloss. The ground-colour is dull greenish or greyish white; and it is thickly speckled and mottled all over, mostly so towards the larger end (where the spots have a tendency to become confluent and form a zone), with dull greyish white and olivaceous brown. The eggs measure 0.62 by 0.42 inch."

Page 151. CINNYRIS JUGULARIS. Add:—

Blue-throated Creeper, Lath. Gen. Syn. B. Suppl. p. 163 (1801).

Anthreptes jugularis, Licht. Nomencl. Av. Mus. Berol. p. 56 (1854).

Cyrtostomus jugularis, Bp. Comptes Rendus, 1854, p. 265; Tweedd. P. Z. S. 1878, pp. 710, 951; 1879, p. 72.

Arachnechthra jugularis, Tweedd. P. Z. S. 1877, pp. 536, 538, 547, 698, 763, 830; 1878, pp. 112, 286, 343.

The late Marquis of Tweeddale kindly lent me for examination specimens collected by Mr. A. H. Everett from the following localities:—Monte Alban, near Manila, island of Luzon; Amparo, in the island of Leyte; Valencia, southern point of Negros; islands of Bohol and Nipah; Butuan river, Placer, Surigao, and Zamboanga, in Mindanao; islands of Basilan and Camiguin.

The specimens examined from Leyte, Panay, and Guimaras show no signs of chrome-yellow on the chest, and no metallic colours on the forehead; two adult males from Negros have the centre of their chests rather strongly shaded with orange, and the frontal feathers slightly tinted with metallic green; a male from Zebu also has the chest shaded with orange, but no metallic

shade on the forehead; one male from Basilan has the entire forehead metallic violet, and the centre of the chest slightly shaded with orange, while a second male from the same island has no metallic colouring on the forehead, and no shade of orange on the chest.

An immature male from Leyte is similar in plumage to the female, excepting that it has a broad, black, partially metallic band down the centre of the throat. In this group of Sun-birds the adult dress appears generally in the form of a central band of metallic colours on the throat, while in the "*Hermotimia* group" the metallic feathers are generally first assumed on the sides of the throat.

The Nestling, "♀, Butuan, May 1877" (Everett). Upper parts olive; wings dark brown with broad olive-yellow edges to all the feathers; tail black with the outer feathers on each side white, and with white ends to some of the others; car-coverts olive like the back; eyebrows, cheeks, and entire underparts bright yellow. Total length 2·5 inches, culmen 0·4, wing 1·55, tail 0·6, tarsus 0·55.

Page 153. CINNYRIS FRENATUS. Add:—

Cyrtostomus frenatus, Bp. Comptes Rendus, 1854, p. 265; Salvad. Ann. Mus. Civ. Genova, vii, pp. 400, 658, 777, 825 (1875), viii, p. 30 (1876), x, p. 143 (1877); id. Atti R. Acc. Sc. Torino, xii, p. 317 (1877); id. P. Z. S. 1878, p. 97.

Nectarinia eximia, Gray, P. Z. S. 1858, p. 190; id. 1861, p. 433.

?*Nectarinia zenobia*, Gray, P. Z. S. 1859, p. 155; 1860, p. 348, part., "Gilolo;" 1861, p. 433, part., "New Guinea."

Nectarinia frenata, Finsch, Neu-Guinea, p. 163 (1865); D'Albertis, Ibis, 1877, p. 367; Sclat. P. Z. S. 1877, pp. 103, 553; Forbes, P. Z. S. 1878, p. 125; Sclat. tom. cit. p. 289; Finsch, P. Z. S. 1879, p. 11.

Cinnyris frenatus, Ramsay, Proc. Linn. Soc. New S. Wales, iii, p. 287 (1878).

Arachnechthra frenata, Meyer, Ibis, 1879, p. 131.

I entered this species by error as found in the island of Ceram, on the authority of a female specimen so labelled. This specimen was collected by Mr. Wallace; and I now feel confident that it should be referred to *C. zenobia*. *C. frenatus* and *C. zenobia* are not, I believe, to be met with on the same islands; so that the *N. zenobia*, Gray, in the above synonymy probably belongs here.

The eggs of this species, according to Mr. Ramsay, "are three in number, whitish or pinkish white, with red spots, or dots, some sparingly, others thickly blotched."

Page 161. CINNYRIS FLAMMAXILLARIS. Add:—

?*Anthreptes gularis*, Licht. Nomencl. Av. p. 56 (1854).

Arachnechthra flammoxillaris, Stoliczka, J. A. S. B. xxxix, p. 301 (1870); Blyth & Walden, Cat. Mamm. & B. Burma, p. 141 (1875); Armstrong, Str. F. iv, p. 313 (1876); Oates, Str. F. v, p. 148 (1877); Hume & Davison, Str. F. vi, pp. 192, 507 (1878).

Mr. Oates writes to me from Pegu, 4th September 1877, that "it is an error to suppose this

species has seasonal plumages. The young male is coloured like the female up to the first spring, then assumes by a complete moult the plumage of the adult male, and never again changes. The eggs vary in length from 0.65 to 0.60 inch, and in breadth from 0.49 to 0.47; and the average of six eggs is 0.62 by 0.475. The breeding-season lasts from the commencement of June to the end of August." For further details regarding the breeding of this species I must refer my readers to Mr. Oates's article in 'Stray Feathers,' vol. v, p. 148.

Page 165. CINNYRIS PECTORALIS. Add:—

- Cyrtostomus eximius*, Bp. Comptes Rendus, 1854, p. 265.
Nectarinia eximia, Finsch, Neu-Guinea, p. 163 (1865).
Arachnechthra pectoralis, Ball, J. A. S. B. xxxix, p. 31 (1870); Tweed. Ibis, 1877, p. 302.
Cyrtostomus pectoralis, Salvad. Ann. Mus. Civ. Genova, xiv, p. 212 (1879).
Cinnyris pectoralis, Nicholson, Ibis, 1879, p. 166; Sharpe, tom. cit. p. 259; id. P. Z. S. 1879, p. 341.

Page 177. CINNYRIS LOTENIUS. Add:—

- Golden-green Creeper*, Lath. Gen. Syn. ii, p. 716 (1781).
Cinnyris omnicolor, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 508 (1819).
Cinnyris purpuratus, Bonn. et Vieill. Enc. Méth. ii, p. 596 (1823).
? Cinnyris falcatus, Less. Man. d'Orn. ii, p. 30 (1828).
Nectarinia polita, Drapiez, Dict. Class. xv, p. 511 (1829).
Nectarinia purpurata, Drapiez, tom. cit. p. 514.
Anthreptes lotenia, Licht. Nomencl. Av. p. 56 (1854).
Arachnechthra lotenia, Bp. Comptes Rendus, 1854, p. 265; Jerdon, Ibis, 1872, p. 18.
Cinnyris lotenius, Fairbank, Str. F. 1877, p. 399; Legge, B. Ceylon, p. 563 (1879).

Page 181. CINNYRIS ASIATICUS. Add:—

- Cinnyris chrysopterus*, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 493 (1819).
Cinnyris asiaticus, Vieill. tom. cit. p. 494; Fairbank, Str. F. v, p. 399 (1877); Davison & Wenden, Str. F. vii, p. 79 (1878); Cripps, tom. cit. p. 267; Legge, B. Ceylon, p. 566 (1879).
Cinnyris virescens, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 497 (1819); Bonn. et Vieill. Enc. Méth. ii, p. 585 (1823); Bp. Consp. Av. i, p. 407 (1850); Reichb. Handb. Scansoriæ, p. 289, no. 669, pl. 575, fig. 3919 (1851); Müll. J. f. O. 1855, p. 15.
Cinnyris currucaria, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 500 (1819); Sykes, J. A. S. B. iii, p. 542 (1834).
Red-banded Creeper, Lath. Gen. Hist. B. iv, p. 244 (1822).
Nectarinia chrysoptera, Drapiez, Dict. Class. xv, p. 509 (1829).
? Nectarinia currucaria, Drapiez, tom. cit. p. 510.

?*Nectarinia sola*, Drapiez, tom. cit. p. 514.

Cinnyris orientalis, Warlow, J. A. S. B. i, p. 320 (1832).

Cinnyris mahrattensis, Sykes, J. A. S. B. iii, p. 543 (1834).

Nectarinia mahrattensis, Gray, Cat. Mamm. & B. Nepal, p. 59 (1846); Kelaart, Prodrumus, p. 49 (1852).

Anthreptes mahrattensis, Licht. Nomencl. Av. p. 56 (1854).

Arachnechthra currucaria, Bp. Comptes Rendus, 1854, p. 265; Blyth, Ibis, 1866, p. 364.

Cinnyris epauletta, Hodgs. J. A. S. B. xxiv, p. 575 (1855).

Cinnyris strigula, Hodgs. tom. cit. p. 575.

Arachnechthra asiatica, Horsf. & Moore, Cat. B. Mus. E. I. Co. ii, p. 743 (1856); Beavan, Ibis, 1865, p. 415; Brooks, Ibis, 1869, p. 47; Blyth & Walden, Cat. Mamm. & B. Burma, p. 141 (1875); Butler, Str. F. iii, p. 462 (1875); Hume & Davison, Str. F. vi, p. 190 (1878).

Nectarinia asiatica, Hartl. J. f. O. 1859, p. 293; Blanford, Ibis, 1870, p. 467.

Arachnechthra edeni, Anders. Anat. & Zool. Researches Yunnan Exp., p. 661, pl. 47 (1878).

Anderson separates the western and more purple form of *C. asiaticus* under the new name of *Arachnechthra edeni*. His type comes from Bhamô, in Burmah; and he recognizes the Tenasserim bird as identical. I only know of this form from his illustration of the adult male and from his description, which appear to agree well with the *A. intermedia*, Hume, a form which I consider cannot be admitted as distinct from *Cinnyris asiaticus*.

In my original article I incorrectly attributed the title *Cinnyris orientalis* to Horsfield instead of to Franklin.

Page 191. CINNYRIS CUPREUS. Add:—

Nectarinia cuprea, Hartl. Orn. W.-Afr. p. 270 (1858); Reichen. Corr. afrik. Gesellsch. no. 10, 1874, p. 179; Bocage, Orn. d'Angola, p. 173 (1877).

Nectarinia chalcea, Bocage, tom. cit. p. 174.

Aidemonia cuprea, Oust. Nouv. Arch. Mus. i, p. 92 (1878).

In my original article I entered *Nectarinia porphyrocephala*, Heugl., incorrectly as *N. porphyrolæma*.

Page 195. CINNYRIS NOTATUS. Add:—

Cinnyris lotenius, Vicill. N. Dict. d'Hist. Nat. xxxi, p. 493 (1819).

Nectarinia angladiana, Hartl. Vög. Madag. p. 89 (1877).

In a recent collection sent to me by Dr. Kirk from the island of Grand Comoro there were several males of this species, which does not appear to be uncommon on that island.

Page 197. CINNYRIS SUPERBUS. Add:—

Nectarinia superba, Drapiez, Dict. Class. xv, p. 514 (1829); Bocage, Orn. d'Angola, p. 165 (1877); Reichen. J. f. O. 1877, p. 25.

Cinnyris superbus, Sharpe & Bouvier, Bull. Soc. Zool. France, i, p. 41 (1876).
Chromatophora superba, Oust. Nouv. Arch. Mus. i, p. 85 (1878).

Page 199. CINNYRIS JOHANNÆ. Add:—

Cinnyris johannæ, Sharpe & Bouvier, Bull. Soc. Zool. France, i, p. 305 (1876); Oust. Nouv. Arch. Mus. i, p. 84 (1878).
Nectarinia johannæ, Bocage, Orn. d'Angola, p. 166 (1877).

The range of this species extends as far south as the Congo, where it has been collected by MM. Petit and Lucan.

Page 201. CINNYRIS SPLENDIDUS. Add:—

Nectarinia splendens, Bocage, Jorn. Lisb. ii, p. 135 (1868).
Nectarinia splendida, Bocage, Orn. d'Angola, p. 167 (1877).
Cinnyris splendidus, Nicholson, P. Z. S. 1878, p. 129; Oust. Nouv. Arch. Mus. i, p. 83 (1878).

Mr. Henry Robin has sent it home from Abeokuta to Mr. Nicholson.

Page 211. CINNYRIS MARIQUENSIS. Add:—

Cinnyris mariquensis, Sharpe, ed. Layard's B. S. Afr. p. 319 (1876).

Page 215. CINNYRIS OSIRIS. Add:—

In my Latin description of the adult male, read *C. mariquensis* instead of *C. bifasciatus*, for it is larger than *C. bifasciatus*, and scarcely smaller than *C. mariquensis*.

Page 217. CINNYRIS BIFASCIATUS. Add:—

Nectarinia nitens, Drapiez, Dict. Class. xv, p. 515 (1829).
Nectarinia jardinei, Bocage, Jorn. Lisb. 1870, p. 340; 1876, p. 262; Reichen. J. f. O. 1877, p. 25.
Cinnyris bifasciatus, Sharpe, ed. Layard's B. S. Afr. p. 322 (1876); Sharpe & Bouvier, Bull. Soc. Zool. France, 1876, p. 41.
Nectarinia bifasciatus, Bocage, Orn. d'Angola, p. 168 (1877).

Page 219. CINNYRIS MICRORHYNCHUS. Add:—

Nectarinia jardinei, Finsch & Hartl. Vög. Ost-Afr. p. 861 (1870); Fischer & Reichen, J. f. O. 1878, p. 260.
Cinnyris microrhynchus, Nicholson, P. Z. S. 1878, p. 355.
Cinnyris jardinei, Cab. J. f. O. 1878, p. 227.

This species appears to be fairly plentiful throughout the Zanzibar district, from Mombas to Dar-es-Salaam; and I have recently received several specimens from Dr. Kirk from the latter locality, and from the Ushambala hills, inland from Pangani.

Page 229. CINNYRIS LEUCOGASTER. Add:—

Cinnyris leucogaster, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 515 (1819); Less. Mann. d'Orn. ii, p. 56 (1828); Walden, Ibis, 1870, p. 49.

Nectarinia leucogaster, Drapiez, Dict. Class. xv, p. 515 (1829).

Cinnyris thoracicus, Less. Trait. d'Orn. ii, p. 297 (1831); Pucheran, Rev. et Mag. Zool. 1853, p. 487.

Nectarinia talatala, Bocage, Jorn. Lisb. 1874, p. 35; 1876, p. 151; Sharpe, ed. Layard's B. S. Afr. p. 318 (1876); Bocage, Orn. d'Angola, p. 172 (1877).

Cinnyris talatala, Ayres, Ibis, 1879, p. 294.

The title *Nectarinia talatala*, Smith, by which this species is more generally known, must be set aside for the very appropriate one of *Cinnyris leucogaster*, Vieill.; for I have examined Vieillot's type in the Paris Museum; it is a fine adult male in good preservation, and there can be no doubt as to its belonging to this species, which I figured and described under the title of *Cinnyris talatala*.

Page 233. CINNYRIS ALBIVENTRIS. Add:—

Nectarinia albiventris, Blyth, J. A. S. B. xxiv, p. 303 (1855).

Page 235. CINNYRIS VENUSTUS. Add:—

?*Cinnyris flaviventer*, Less. Descr. Mamm. et Ois. p. 270 (1847).

Nectarinia venusta, Bocage, Orn. d'Angola, p. 173 (1877).

Professor Barboza du Bocage records this species from Biballa and Caconda, thus extending it to the interior of Benguela.

Page 239. CINNYRIS AFFINIS. Add:—

Cinnyris affinis, Cab. J. f. O. 1878, p. 227.

According to Dr. Cabanis (*l. c.*), Drs. Hildebrand and Von Kalckreuth found this species plentiful at Ndi, in the Taita country. This is a most interesting new locality, as the species was not previously known to extend beyond the limits of the North-east African subregion.

Page 241. CINNYRIS FAZOGLENSIS (*C. heuglini*, Shelley, 1879).

Nectarinia fazoglensis, Finsch in Heugl. Orn. N.O.-Afr. App. p. lxx.

I overlooked the description by Dr. Finsch in Heuglin's Appendix; hence my *Cinnyris heuglini* falls to the ground.

Page 249. CINNYRIS AFER. Add:—

Cinnyris viridis, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 514 (1819).

Nectarinia smaragdina, Drapiez, Dict. Class. xv, p. 513 (1829).

Nectarinia scarlatina, Licht. Nomencl. Av. p. 55 (1854).

Cinnyris afra, Bp. Comptes Rendus, 1854, p. 265 (1854); Ayres, Ibis, 1876, p. 425; 1879, p. 294.

Nectarinia afra, Sclat. P. Z. S. 1866, p. 22.

Cinnyris afer, Sharpe, ed Layard's B. S. Afr. p. 313 (1876).

Nectarinia ludovicensis, Bocage, Orn. d'Angola, p. 169 (1877).

It has been collected by Mr. T. Ayres in the Lydenburg district, and by Mr. T. E. Buckley in Swaziland.

Page 253. CINNYRIS CHALYBEUS. Add:—

Certhia chalybea, Shaw & Nodd. Nat. Misc. x, pl. 381 (1799).

Nectarinia chalybea, Drapiez, Dict. Class. xv, p. 510 (1829); Licht. Nomencl. Av. p. 55 (1854); Schl. Handl. Dierk. p. 256 (1857).

Cinnyris chalybeus, Bp. Comptes Rendus, 1854, p. 265; Sharpe, ed. Layard's B. S. Afr. p. 314 (1876); Ayres, Ibis, 1876, p. 425.

Nectarinia intermedia, Bocage, Jorn. Lisb. 1878, p. 3.

Professor Barboza du Bocage has kindly sent me a specimen of his *Nectarinia intermedia*, collected by M. Anchieta at Caconda. It is a male of this species in partial moult. The locality is interesting, as it extends the range of *C. chalybeus* into Benguela.

Page 257. CINNYRIS CHLOROPYGIUS. Add:—

Nectarinia chloropygia, Licht. Nomencl. Av. p. 55 (1854); Hartl. J. f. O. 1860, p. 109; Hein. tom. cit. p. 136; Reichen. J. f. O. 1877, p. 25; Bocage, Orn. d'Angola, p. 170 (1877).

Anthodiata chloropygia, Bp. Comptes Rendus, 1854, p. 265; Oust. Bull. Soc. Philom. . . series, i, p. 106 (1877); id. Nouv. Arch. Mus. i, p. 87 (1878).

Cinnyris chloropygius, Sharpe & Bouvier, Bull. Soc. Zool. France, 1876, p. 41.

It has been collected in the Congo district by M. Petit, at Landana and Chinchonxo.

Page 261. CINNYRIS GUTTURALIS.

Cinnyris senegalensis, Hahn, Orn. Atlas, *Cinnyris*, pl. 1 (1 . . .

Nectarinia natalensis, Licht. Nomencl. Av. p. 55 (1854); Sperling, 1 . . .

Nectarinia gutturalis, Bocage, Jorn. Lisb. 1873, p. 197; 1874, p. 51; 1876 . . .

1877, p. 66; id. Orn. d'Angola, p. 164 (1877); Fischer, J. f. O. . . 170 208; Cab. . .

J. f. O. 1878, p. 227; Fischer & Reichen. tom. cit. p. 260; Bocage, Jorn. Lis . . .

Cinnyris gutturalis, Sharpe, ed. Layard's B. S. Afr. p. 311 (1876); Nichol . . . p. 355.

Throughout the Zanzibar coast it appears to be plentiful, and ever . . . tributed; for I have received it in Dr. Kirk's collections from Dar-es-Salaam, Zanzibar, and the Pangani river.

In Angola M. Anchieta met with it in bands of several individuals in the Humbe district, and was much struck with the sweetness and variety of its song.

Page 269. CINNYRIS AMETHYSTINUS. Add:—

?*Cinnyris erythrothorax*, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 507 (1819).

Nectarinia amethystinus, Bocage, Orn. d'Angola, p. 163 (1877).

Cinnyris amethystinus, Ayres, Ibis, 1879, p. 294.

To this species I think Vieillot's *Cinnyris erythrothorax* should probably be referred; but the description is far from being conclusive, and the type no longer exists.

The north-western limit for the range of this species, as far as it is yet known, is Caconda, in the interior of Benguela; and it probably does not extend to the north of the river Quanza, into Angola proper.

Page 273. CINNYRIS KIRKII. Add:—

Cinnyris kirkii, Sharpe, ed. Layard's B. of S. Afr. p. 317 (1876).

Cinnyris (Chalcomitra) kalkreuthi, Cab. J. f. O. 1878, pp. 205, 227.

Nectarinia kalkreuthi, Fisch. & Reichen. tom. cit. p. 260.

Dr. Hildebrandt has collected this species at Mombas, Adi, and Kitui; and Drs. Fischer and Reichenow give the following description of the egg:—"Die Eier sind einfarbig grau, oder am stumpfen Ende dunkel schattirt und mit schwärzlichem Kritzeln bedeckt. Länge 16, Dicke 10·5 mm."

Page 275. CINNYRIS FULIGINOSUS. Add:—

Nectarinia fuliginosa, Reichen. Corr. afrik. Gesellsch. no. 10, p. 179 (1874); Bouvier, Cat. Ois. Marche, &c. p. 14 (1875); Bocage, Orn. d'Angola, p. 163 (1877).

Carmelita fuliginosa, Oust. Bull. Soc. Philom. 7th series, i, p. 106 (1877); id. N. Arch. Mus. i, p. 93 (1878).

The range which I ascribed to this species must be altered into "West Africa, from Senegal to the Congo;" for we have no evidence of its ever having been procured in Angola, or, in fact, any portion of the country of the Congo.

Page 279. CINNYRIS ANGOLENSIS. Add:—

Nectarinia angolensis, Sharpe & Bouvier, Soc. Zool. France, i, p. 304 (1876).

Nectarinia angolensis, Bocage, Orn. d'Angola, p. 162 (1877).

Nectarinia rubescens, Bocage, tom. cit. p. 178.

Nectarinia angolensis, Oustalet, N. Arch. Mus. i, p. 84 (1878).

Page 285. CINNYRIS FUSCUS. Add:—

Nectarinia fusca, Drapiez, Dict. Class. xv, p. 513 (1829); Bocage, Orn. d'Angola, p. 175 (1877).

Page 287. CINNYRIS VERREAUXI. Add:—

Nectarinia verreauxii, Licht. Nomencl. Av. p. 55 (1854).

Cinnyris verreauxii, Sharpe, ed. Layard's B. S. Afr. p. 309 (1876).

Page 289. CINNYRIS OLIVACEUS. Add:—

Adelina olivacea, Bp. Comptes Rendus. 1854, p. 265.

Cinnyris olivaceus, Sharpe, ed. Layard's B. S. Afr. p. 310 (1876).

Page 291. CINNYRIS OBSCURUS. Add:—

Cinnyris obscurus, Sharpe & Bouvier, Bull. Soc. Zool. France, i, p. 304 (1876).*Adelinus obscurus*, Oust. N. Arch. Mus. i, p. 88 (1878).

Page 293. CINNYRIS DUSSUMIERI. Add:—

Nectarinia dussumieri, Hartl. Vög. Madag. p. 90 (1877).

Page 295. CINNYRIS HARTLAUBI. Add:—

Nectarinia hartlaubi, Bocage, Orn. d'Angola, p. 179 (1877).

Page 297. CINNYRIS CYANOLÆMUS. Add:—

Nectarinia cyanolæma, Bouvier, Cat. Ois. Marche, &c. p. 13 (1875); Bocage, Orn. d'Angola, p. 176 (1877).

Page 299. CINNYRIS REICHENBACHII. Add:—

Nectarinia reichenbachi, Reichen. J. f. O. 1875, p. 31; Bouvier, Cat. Ois. Marche, &c. p. 14 (1875).*Adelinus reichenbachii*, Oust. N. Arch. Mus. i, p. 88 (1878).

Dr. Reichenow informs us that it is plentiful in the Camaroons and Gaboon; and M. Oustalet mentions a specimen collected by M. Marche at Cape Lopez.

Page 301. CINNYRIS VERTICALIS. Add:—

Nectarinia cyanocephala, Reichen. Corr. afrik. Gesellsch. no. 10, p. 179 (1874); Bocage, Orn. d'Angola, p. 171 (1877).*Cyanomitra cyanocephala*, Oust. N. Arch. Mus. i. p. 89 (1878).

10. ANTHREPTES.

Type.

<i>Anthreptes</i> , Swains. Class. B. ii, p. 329 (1837)	. . . . .	<i>A. malaccensis</i> .
<i>Cinnyricinclus</i> , Less. Rev. iii, p. 272 (1840)	. . . . .	<i>A. longuemarii</i> .
<i>Anthodietu</i> , Cab. Mus. Hein. i, p. 100 (1850)	. . . . .	<i>A. collaris</i> .
<i>Chalcoparia</i> , Cab. tom. cit. p. 103	. . . . .	<i>A. phænicotis</i> .
<i>Anthothreptes</i> , Cab. tom. cit. p. 104	. . . . .	<i>A. malaccensis</i> .
<i>Mangusia</i> , Bp. Compt. Rend. 1854, p. 265	. . . . .	<i>A. rectirostris</i> .
<i>Euchloridia</i> , Reichb. Handb. Scansoriæ, p. 312 (1854)	. . . . .	<i>A. rectirostris</i> .
<i>Hypogramma</i> , Reichb. tom. cit. p. 314	. . . . .	<i>A. hypogrammica</i> .
<i>Tephrolæma</i> , Heine, J. f. O. 1860, p. 137	. . . . .	<i>A. tephrolæma</i> .
<i>Arachnophila</i> , Salvad. Ann. Mus. Civ. Genova, v, p. 172 (1874)	. . . . .	<i>A. simplex</i> .

Keel of the lower mandible perfectly straight. Membrane over the nostrils bare. No loose downy feathers on the sides of the back. Tail square or slightly rounded.

Range. Ethiopian, Indian, Malay, and Philippine regions.

Key to the Species.

- a. Throat and chest without metallic colours. Female never adorned with metallic colours, and with the back always clear olive.
 - a'. General plumage olive.
 - a". Breast strongly striped *hypogrammica*, p. 305.
 - b". Breast without stripes.
 - b"". No portion of the plumage metallic. Pectoral tufts orange-red *fraseri*, p. 307.
 - c"". Only forehead metallic. No pectoral tufts *simplex*, p. 309.
 - b'. General plumage in the male not olive. Entire upper parts metallic.
 - b". No metallic colours on the cheeks and ear-coverts. Larger.
 - b"". Throat rosy-red. Cheeks and ear-coverts strongly shaded with rufous *rhodolæma*, p. 313.
 - c"". Throat brown. Cheeks and ear-coverts olive.
 - c"". Smaller.
 - c"". Breast and pectoral tufts nearly the same shade of yellow *malaccensis*, p. 315.
 - d"". Breast yellowish olive, contrasting strongly with the bright yellow pectoral tufts *celebensis*, p. 319.
 - d"". Larger. Breast olive-yellow, contrasting rather strongly with the bright yellow pectoral tufts *chorigastra*, p. 321.
 - d"". Throat silvery grey *griseigularis*, p. 323.
 - c". Checks and ear-coverts ruby-copper. Smaller *phænicotis*, p. 325.
 - b. Throat or collar of metallic colours. Females generally adorned with metallic colours, and with the back never clear olive.
 - b'. Female—mantle ashy or dusky brown, and not metallic.
 - b". Metallic parts confined to the throat and front half of the crown. A broad band down the centre of the chest and the under tail-coverts scarlet *anchietæ*, p. 329.
 - c". Male—chin and upper half of the throat not metallic, remainder of the head, neck, and mantle metallic green. Female without metallic colours.
 - c"". Chin and upper half of the throat yellow *rectirostris*, p. 331.
 - d"". Chin and upper half of the throat ashy grey *tephrolæma*, p. 333.
 - d". Male—chin, throat, and entire upper parts metallic violet or steel-blue. Female with the same metallic colours confined to the upper tail-coverts and tail *longuemarii*, p. 335.
 - c'. Female—entire upper parts of metallic colours, similar to the male. In the male sides of the head, chin, and upper half of the throat also metallic.
 - c". Larger. Metallic portion of the throat shorter, and not ending in a steel-blue collar. Pectoral tufts orange *aurantia*, p. 337.
 - d". Smaller. Metallic portion of the throat longer, and ending in a steel-blue collar. Pectoral tufts yellow.

- d*^m. Secondaries edged with metallic green *collaris*, p. 339.
e^m. Secondaries edged with olive-yellow, glossed with gold on the
 inner feathers *zambesiana*, p. 343.
f^m. Secondaries edged with olive-yellow without metallic lustre . *hypodila*, p. 345.

Page 305. ANTHREPTES HYPOGRAMMICA. Add:—

- Anthreptes hypogrammica*, Licht. Nomencl. Av. p. 55 (1854); Brügg. Abhandl. Ver. Bremen, v, p. 458 (1876); Hume & Davison, Str. F. vi, p. 178 (1878); Sharpe, Ibis, 1879, p. 260.
Hypogramma nuchalis, Hume, Str. F. iii, p. 319 (1875).
Anthreptes nuchalis, Bouvier, Bull. Soc. Zool. France, ii, p. 300 (1877).

Page 309. ANTHREPTES SIMPLEX. Add:—

- Anthreptes simplex*, Sharpe, Ibis, 1877, p. 18; Brügg. Abhandl. Ver. Bremen, v, p. 458 (1877); Hume & Davison, Str. F. vi, p. 188 (1878); Sharpe, Ibis, 1879, p. 260.
Arachnophila simplex, Tweedd. Ibis, 1877, p. 301; Salvad. Ann. Mus. Civ. Genova, xiv, p. 212 (1879).
Arachnothera simplex, Bouvier, Bull. Soc. Zool. France, ii, p. 300 (1877).

Page 313. ANTHREPTES RHODOLÆMA. Add:—

- Anthreptes rhodolæma*, Sharpe, Ibis, 1879, p. 260.

Mr. Sharpe records this species for the first time from Borneo upon the authority of a specimen collected by Mr. W. H. Treacher on the Lâwas River.

Page 315. ANTHREPTES MALACCENSIS. Add:—

- Cinnyris lepidus*, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 504 (1819).
Nectarinia lepida, Drapiez, Dict. Class. xv, p. 512 (1829).
Anthreptes malaccensis, Bp. Comptes Rendus, 1854, p. 265; Tweedd. P. Z. S. 1878, p. 621; Hume & Davis. Stray F. vi, p. 186 (1878); Salvad. Ann. Mus. Civ. Genova, xiv, p. 213 (1879); Nicholson, Ibis, 1879, p. 166; Sharpe, P. Z. S. 1879, p. 342.

The locality Flores should be taken from the range of this species; for the Flores specimen which I have examined I now consider to belong to *A. celebensis*.

In the Paris Museum I have examined adult males from Igikas and Bang-kok, in Siam, on the authority of Bocourt, and from Cochin China (*Harmand*).

Page 319. ANTHREPTES CELEBENSIS. Add:—

- Anthreptes celebensis*, Meyer, Ibis, 1879, p. 131.

The adult male and the three immature males collected by Mr. Wallace in Flores, which I

previously referred to *A. malaccensis*, I am now convinced should belong to this species, as well as another specimen collected by Mr. Wallace which I have examined in the Paris Museum. Dr. Meyer, from his personal notes on the birds of Celebes (*Ibis*, 1879, p. 131), writes:—"A common bird in the Minahassa. Togian Islands, August; Limbotto, July. South Celebes: Batubassi, November; Makassar, Tello, January. Iris red; feet greyish green; claws grey; sole of the foot yellow; bill black. Feeds on insects."

Page 321. *ANTHREPTES CHLORIGASTRA*. Add:—

Anthothreptes chlorogaster, Tweedd. *P. Z. S.* 1877, p. 763; 1878, pp. 287, 951; 1879, p. 72.

Mr. A. H. Everett has collected this species at Valencia, at the southern extremity of Negros, on the island of Zebu, and also from Zamboanga, in Mindanao, and on the island of Basilan. The specimens from Zamboanga and Basilan are of rather small size; the only adult male, from Zamboanga, measures—total length 4·9 inches, culmen 0·7, wing 2·6, tail 1·75, tarsus 0·7; and the throat is strongly shaded with rufous.

Page 325. *ANTHREPTES PHÆNICOTIS*. Add:—

Nectarinia phænicotis, Drapiez, *Dict. Class.* xv, p. 513 (1829).

Chalcoparia singalensis, Hume & Davison, *Str. F.* vi, p. 189 (1878).

Chalcoparia cingalensis, Anderson, *Anat. & Z. Researches*, Yunnan Exped. p. 662 (1878).

Anthreptes phænicotis, Nicholson, *Ibis*, 1879, p. 166; Sharpe, *tom. cit.* p. 260; *id.* *P. Z. S.* 1879, p. 342.

Chalcoparia phænicotis, *Salvad. Ann. Mus. Civ. Genova*, xiv, p. 214 (1879).

The tongue of this species is of the ordinary *Anthreptes* type—bifurcated, and not quite so long as in *Cinnyris*; this I have ascertained from the examination of a specimen kindly sent to me in spirits by Mr. Hume for this purpose, which is now preserved in the British Museum.

In Yunnan this species has been recorded by Mr. Anderson from Sawady.

Page 331. *ANTHREPTES RECTIROSTRIS*. Add:—

Mangusia rectirostris, Bp. *Comptes Rendus*, 1854, p. 265.

Nectarinia fantensis, Sharpe, *Ibis*, 1871, pp. 441, 470.

Nectarinia gabonica, Sharpe, *Cat. Afr. B.* p. 41 (1871); *id.* *Ibis*, 1872, p. 70.

In my original article I describe an immature bird as the adult female, and the throat of that specimen as being buffish yellow instead of ashy white. The true adult female of this species I now feel confident is the *Nectarinia gabonica*, Sharpe (*nec Hartl.*), of which the following is a description:—

Upper parts ashy brown slightly tinted with olive towards the lower back; wings and tail rather darker brown with the edges of the feathers paler and shaded with olive; tail tipped with white, most broadly

so towards the outer feathers; eyebrow, cheeks, and sides of the forehead white; under surface of the body white, shaded with ashy on the crop, sides of the body, abdomen, and under tail-coverts; under surface of the wings brown with pale inner margins to the quills, and with the coverts white; bill and legs black; irides dark brown. Total length 4 inches, culmen 0·5, wings 2·3, tail 1·6, tarsus 0·65.

This specimen forms the subject of the upper figure in the illustration, and is the one of which Mr. Sharpe writes (*Ibis*, 1872, p. 70):—"Of this curious little Sun-bird Mr. Ussher sends a single specimen from Fantee. I had already noticed it in his Volta collection, but had been unable to determine it until M. J. Verreaux recognized it as *N. gabonica*, of which the type is in his own collection in Paris. I cannot help having an idea that this bird will prove to be the female of some other species of Sun-bird, though M. Verreaux entertains the contrary belief."

The generic title of *Anthodiæta*, which I formerly applied to this species, should be discarded for that of *Anthreptes*.

Page 333. ANTHREPTES TEPHROLÆMA. Add:—

Nectarinia gabonica, Hartl. J. f. O. 1861, pp. 13, 109; Gray, Hand-l. B. i, p. 107, no. 1300 (1869).

Nectarinia chlorolæma, Hartl. P. Z. S. 1860, p. 7.

Anthodiæta tephrolæma, Sharpe, *Ibis*, 1875, p. 69; Oust. Bull. Soc. Philom. 7th series, p. 106 (1877); id. N. Arch. Mus. i, p. 87 (1878).

Nectarinia tephrolæma, Bouvier, Cat. Ois. Marche, &c. p. 13 (1875); Bocage, Orn. d'Angola, p. 177 (1877).

In 1876, when I published the first part of my present work, I described as the adult female of *A. tephrolæma* what I have now no doubt is a bird in immature plumage. This error arose from the sex not being marked on any of the specimens, and from my unwillingness to consider *Nectarinia gabonica*, Hartl., as specially distinct from *N. gabonica*, Sharpe; yet I now feel confident that the former is the true female of *A. tephrolæma* and the latter that of *A. rectirostris*.

Their range exactly coincides; their measurements agree; and their colouring, as females of these two species, is not surprising when we compare them with the female of *A. longuemariæ*. I have been unable to examine a typical specimen of *Nectarinia gabonica*, Hartl.; so I here quote the original description:—"Supra cinerea; rectricibus, duabus intermediis exceptis, macula alba terminatis; fasciola stricta frontali utrinque supra oculos parum conspicue extendente lorisque albis; subtus albida, pectore et lateribus subcinerascentibus; subalaribus niveis; rostro brevi nigerrimo; pedibus nigris. Long. 3" 10–11", rostr. a fr. 5", al. 2" 1", caud. a bas. 15", tar. 6" (? ♀)."

In my original article, for *Anthodiæta tephrolæma* read *Anthreptes tephrolæma*; and in the description, for "*Adult Female*" read "*Immature bird*".

Nectarinia chlorolæma, Hartl., was, I am informed by the author, only a misprint for *N. tephrolæma*.

Page 335. ANTIREPTES LONGUEMARII. Add:—

Anthreptes longuemarii, Oust. N. Arch. Mus. i, p. 152 (1878).

Anthothreptes longuemarii, Cab. J. f. O. 1878, p. 227.

M. Oustalet (*l. c.*) was the first to record this species from Los Island, close to the coast to the north of Sierra Leone, and remarks that the specimen agrees perfectly with others from Casamance.

Professor Barboza du Bocage kindly forwarded to me for examination a male and female from Caconda, in Benguela; and I found them to agree perfectly with the specimens I figured and described from Casamance.

Since I wrote my original article the range of this species has been found to extend into the Zanzibar province of Eastern Africa, where Dr. Hildebrandt has procured it at Ndi, in the Taita country, as recorded by Dr. Cabanis (*l. c.*); and in my own collection I have a specimen collected by Dr. Fischer at Massa on the 5th November 1878. This specimen, an adult male, agrees well with my former description, excepting in its somewhat smaller size: total length 4·6 inches, culmen 0·55, wing 2·5, tail 2, tarsus 0·7.

Page 337. ANTIREPTES AURANTIA. Add:—

Anthreptes aurantius, Oust. Bull. Soc. Philom. 7th series, i, p. 106 (1877); id. N. Arch. Mus. i, p. 94 (1878).

Two specimens in the late Marquis of Tweeddale's cabinet, collected by DuChaillu, and both labelled "♂ juv., Camma River, 1858," I shall here describe fully, as there are some interesting points to be remarked in their plumages.

a. Upper parts, including the least and median series of wing-coverts and the ear-coverts, metallic golden-green strongly shaded with steel-blue on the ear-coverts, sides and back of the neck, upper back, and upper tail-coverts; remainder of the wings dark brown, glossed with green; the quills edged with olive-yellow; a few of the innermost secondaries, the greater and primary wing-coverts edged with metallic green, strongly shaded with gold; tail violet-shaded blue, with the edges of the feathers metallic bluish green; in front of the eye a small triangular patch of black feathers; sides of the forehead, a broad eyebrow, cheeks, chin, throat, and front of the chest white slightly washed with brownish buff; remainder of the under surface of the body yellow; pectoral tufts bright yellow slightly shaded with orange; under surface of the wings brown, with pale inner margins to the quills, and the coverts white. Total length 4·3 inches, culmen 0·6, wing 2·35, tail 1·7, tarsus 0·7.

b. Upper parts ashy brown tinted with olive on the back; wings brown, all the feathers edged with olive-yellow; tail dark brown, strongly washed with violet, shaded with green, a few of the outer feathers with pale ends; a triangular patch of feathers in front of the eye and the upper half of the ear-coverts ashy brown like the crown; sides of the forehead, front half of a broad eyebrow, cheeks, lower half of the ear-coverts, and the chin buff; remainder of the eyebrow and throat white; under surface of the body very pale yellow; under wing-coverts white tinted with yellow. Total length 4·2 inches, culmen 0·6, wing 2·4, tail 1·8, tarsus 0·68.

Page 339. *ANTHREPTES COLLARIS*. Add:—*Nectarinia collaris*, Drapiez, Dict. Class. xv, p. 511 (1829).*Cinnyris metallicus*, Less. Traité d'Orn. p. 294 (1831).*Anthodiæta collaris*, Bp. Comptes Rendus, 1854, p. 265; Sharpe, ed. Layard's B. S. Afr. p. 320 (1876).

In my original article I referred this species to the genus *Anthodiæta*; it should stand as *Anthreptes collaris*.

Page 343. *ANTHREPTES ZAMBESIANA*. Add:—*Anthodiæta zambesiana*, Sharpe, ed. Layard's B. S. Afr. p. 321 (1876); Nicholson, P. Z. S. 1878, p. 356.*Anthodiæta collaris*, Cab. J. f. O. 1878, p. 226.*Nectarinia collaris*, Fischer & Reichen. tom. cit. p. 260.

In the Zanzibar district this is a common and widely spread species.

In the original article, for *Anthodiæta zambesiana* read *Anthreptes zambesiana*; and for the last paragraph read that the figure is taken from the type specimen in the British Museum. The lower figure in the illustration alone belongs to this species.

Page 345. *ANTHREPTES HYPODILA*. Add:—*Nectarinia subcollaris*, Bouvier, Cat. Ois. Marche &c. p. 13 (1875).*Cinnyris hypodilus*, Sharpe & Bouvier, Bull. S. Z. France, 1876, p. 41.*Nectarinia hypodilus*, Bocage, Orn. d'Angola, p. 176 (1877); Reichen. J. f. O. 1877, p. 25.*Anthodiæta subcollaris*, Oust. Bull. Soc. Philom. 7th series, i, p. 106 (1877).*Anthodiæta hypodila*, Oust. N. Arch. Mus. i, p. 85 (1878).Subfamily III. *ARACHNOTHERINÆ*.

Form more robust and heavier than in the other subfamilies. Metallic colours never present. Head with or without bare skin, but never wattled. Bill long; keel of the lower mandible always decurved. Bill stouter and rougher than in the other subfamilies. Membrane over the nostrils bare. First primary shortest. Feathers on the sides of the back often of a downy texture and rather long. Tail square or rounded. Tarsus proportionally shorter and stouter, and never dark brown or black.

Range. Indian, Malay, and Philippine regions.

Key to the Genera.

- a. Culmen compressed into a sharp ridge between the nostrils *Arachnothera*.
- b. Culmen not compressed into a sharp ridge between the nostrils, but broad,
flattened or rounded *Arachnoraphis*.

I. ARACHNOTHERA.

Type.

Arachnothera, Temm. Pl. Col. pl. 388, note (1826) *A. chrysogenys*.

Sides of the head with or without bare skin. Culmen compressed into a sharp ridge between the nostrils.

Range. The same as for the subfamily.

Key to the Species.

- a. Checks feathered. No yellow on the sides of the head.
 - a'. Bill proportionally stouter and stronger. No pectoral tufts. Throat and under surface of the body the same colour, and more or less striped.
 - a". Upper parts striped. Underparts buff, and strongly striped.
 - a". Stripes broader and more distinct on the lower half of the back *magna*, p. 347.
 - b". Stripes narrower and almost obsolete on the lower half of the back *aurata*, p. 351.
 - b". Upper parts without stripes. Underparts ashy and indistinctly striped.
 - b". Smaller. Shaft-stripes paler and less sharply defined. General plumage slightly greener. Lower mandible paler *modesta*, p. 353.
 - c". Larger. Shaft-stripes darker and more sharply defined. General plumage slightly more golden above and more ashy beneath. Lower mandible darker *affinis*, p. 355.
 - b'. Bill proportionally weaker and longer. With pectoral tufts. Throat white or ashy white; under surface of the body yellow or shaded with yellow.
 - b". Sides of the chest, abdomen, and under tail-coverts bright yellow.
 - b". Centre of the chest bright yellow. Pectoral tufts chrome-yellow *longirostra*, p. 357.
 - c". Centre of the chest white. Pectoral tufts deep orange *flammifera*, p. 361.
 - c". Under surface of the body olive-buff. Pectoral tufts chrome-yellow *dilutior*, p. 363.
- b. Checks bare. An eyebrow and the lower half of the ear-coverts sulphur-yellow *chrysogenys*, p. 365.

Page 347. ARACHNOTHERA MAGNA. Add:—

Arachnothera magna, Gammie, Str. F. v, p. 385 (1877); Hume & Davison, Str. F. vi, pp. 173, 507 (1878).

Mr. Hume writes (Str. F. vi, p. 507):—"This year in April, for the first time in five years, Davison saw and shot a single specimen of this species, and this not only far south of Pahpoom, but actually at Tavoy itself."

Mr. Gammie (*l. c.*) gives an interesting account of its habits in Sikkim, and mentions an

instance of one of these birds "feeding a fully-fledged Cuckoo (*C. micropterus*) quite strong on the wing."

Arachnothera affinis, Blanford, Ibis, 1870, p. 467, should not be referred to this species, but to *A. longirostra*.

Page 353. ARACHNOTHERA MODESTA. Add:—

Arachnothera modesta, Hume & Davison, Str. F. vi, pp. 176, 507; Salvad. Ann. Mus. Civ. Genova, xiv, p. 214 (1879).

The range of this species is somewhat wider than I previously assigned to it. It ranges from Tavoy town, where it has been procured by Mr. Davison (*l. c.* p. 507), into Sumatra and Borneo. Count Salvadori regards a specimen collected by Dr. Beccari at Sungei Bula, in Western Sumatra, as identical with specimens from Borneo; and, upon such good authority, I presume that the Sumatra species is *A. modesta*, and that *A. affinis* is confined to Java; for I think it highly improbable that two such closely allied species should be found on the same island.

Page 355. ARACHNOTHERA AFFINIS. Add:—

Cinnyris affinis, Eyton, P. Z. S. 1839, p. 101.

I think it advisable to limit the known range of this species to the island of Java, as the evidence for its occurrence in Sumatra, based on *Arachnothera inornata*, S. Müll. & Schl., is not sufficiently good, since Count Salvadori has recognized *A. modesta* as inhabiting that island.

Page 357. ARACHNOTHERA LONGIROSTRA. Add:—

Arachnothera longirostra, Temm. Pl. Col. pl. 388, text (1826); Licht. Nomencl. Av. p. 55 (1854); Fairbank, Str. F. v, p. 397 (1877); Hume & Davison, Str. F. vi, pp. 174, 507 (1878); Hume, Str. F. vii, p. 35 (1878); Nicholson, Ibis, 1879, p. 166; Sharpe, tom. cit. p. 261; Salvad. Ann. Mus. Civ. Genova, xiv, p. 214 (1879).

Cinnyris longirostratus, Less. Man. d'Orn. ii, p. 32 (1828).

Cinnyris longirostris, Less. tom. cit. p. 56.

Arachnothera longirostris, Blyth, J. A. S. B. xv, p. 43 (1846); Schl. Handl. Dierk. p. 237 (1857).

Arachnothera pusilla, Blyth, Cat. B. Mus. A. S. B. p. 222 (1849).

In Western Sumatra, Count Salvadori informs us (*l. c.*), it has been collected by Dr. Beccari at Kaju-tanem and at Ajer.

The Celebes Spider-hunter was first referred to this species by Mr. Blyth (Cat. B. Mus. A. S. B. p. 222).

The illustration of this species was done after I published my article; and I thought it advisable to figure a male instead of a female from Java.

Page 363. ARACHNOTHERA DILUTOR. Add:—

Arachnothera dilutor, Tweedd. P. Z. S. 1878, p. 621.

I have examined four specimens collected by Mr. A. H. Everett at Puerto Princesa, on the island of Palawan. They are one male and three females, in all of which the pectoral tufts are present, and the plumage perfectly similar. According to the labels, “♂ iris brown, bill black, legs and feet dark grey; ♀ iris dark brown, denuded orbital skin greenish yellow, bill black with the lower mandible grey, legs and feet bluish grey.”

Male. Total length 5·8 inches, culmen 1·45, wing 2·8, tail 2·15, tarsus 0·75.

Females. Total length 5·3 to 5·4 inches, culmen 1·2, wing 2·4 to 2·45, tail 1·6 to 1·75, wing 0·65.

Page 365. ARACHNOTHERA CHRYSOGENYS. Add:—

Arachnothera chrysoGENYS, Hume & Davison, Str. F. vi, p. 177 (1878); Sharpe, Ibis, 1879, p. 261; id. P. Z. S. 1879, p. 343; Salvad. Ann. Mus. Civic. Genova, xiv, p. 214 (1879).

Count Salvadori records three specimens collected by Dr. Beccari at Ajer, in the west of the island of Sumatra. Mr. Sharpe writes (P. Z. S. 1879, p. 343):—“*Arachnothera chrysoGENYS* (Temm.), Sharpe, P. Z. S. 1875, p. 107, is to be expunged from the Labuan list.” Nevertheless I feel little doubt it will be found to inhabit that island.

2. ARACHINORAPHIS.

Type.

Arachnoraphis, Reichb. Handb. Scansoriae, p. 313 (1854). *A. flavigaster*.

Arachnocestra, Reichb. tom. cit. p. 314. *A. crassirostris*.

No bare skin on the sides of the head. Culmen not compressed into a sharp ridge between the nostrils, but broad, flattened or rounded.

Range. Malay region.

Key to the Species.

- a. Bill proportionally slighter and longer; culmen more than three times the length of the tarsus. No yellow on the sides of the head . . . *robusta*, p. 367.
- b. Bill proportionally stouter and shorter; culmen rarely exceeds twice the length of the tarsus. With yellow on the sides of the head.
- ♂*. Yellow on the sides of the head confined to a few feathers above and below the eye *crassirostris*, p. 371.
- c*. Yellow on the sides of the head forms a broad circle round the eye, and extends over the lower half of the ear-coverts *flavigaster*, p. 373.

Page 371. ARACHINORAPHIS CRASSIROSTRIS. Add:—

Arachnoraphis crassirostris, Sharpe, Ibis, 1879, p. 261.

Arachnothera crassirostris, Salvad. Ann. Mus. Civ. Genova, xiv, p. 215 (1879).

According to Count Salvadori (*l. c.*) it has recently been collected at Ajer, in the western

province of Sumatra, by Dr. Beccari; and Mr. Sharpe records a specimen sent home from the Láwas river, in Northern Borneo, by Mr. W. H. Treacher. •

Page 373. ARACHNORAPHIS FLAVIGASTRA. Add:—

Arachnothera simillima, Hume, Str. F. vii, p. 171 (1878).

With regard to *A. simillima* Mr. Hume writes (*l. c.*):—"Our people sent us up from near Malacca three more specimens precisely similar to the type, two of which appear to be not only quite adult, but rather old birds.

"Having now four specimens of this form, all of them of precisely the same type, I hardly see how we can avoid the conclusion that they represent a distinct species."

GEOGRAPHICAL DISTRIBUTION.

AFRICAN REGION.

	AFRICAN REGION.			
	MAURITANE SUBREGION.	EASTERN SUBREGION.	SOUTHERN SUBREGION.	WESTERN SUBREGION.
	Seychelles.			
	Madagascar.			
	Mayotte.			
	Anguilla.			
	Great Comoro.			
	Mombasa.			
	Zanzibar.			
	Dar-es-Salaam.			
	Cis-Zambesi.			
	Trans-Zambesi.			
	Matabili.			
	Bamangwato.			
	Transvaal.			
	Swazi Land.			
	Natal.			
	Kaffraria.			
	Cape Colony.			
	Little Namaqua Land.			
	Great Namaqua Land.			
	Damaraland.			
	Benguela.			
	Angola.			
	Congo.			
	Gaboon.			
	St. Thomas Island.			
	Principe Island.			
	Fernando Po.			
	Cameroons.			
	Niger.			
	Abokuta.			
	Iagos.			
	Dahomey.			
	Benue.			
	Sierra Leone.			
	Sierra Leone Island.			
	Biassao.			
	Casamance.			
	Gambia.			
	Senegal.			
	Upper White Nile.			
	Somali Land.			
	Danakil Coast.			
	Abyssinia.			
	Bogos Land.			
	Kordofan.			
	Nubia.			
	Syria Subregion.			
Neodrepanis coruscans	*			
Hedydipna metallica				
— platyrus				
Nectarinia pulchella				
— famosa				
— cupreonitens				
— facaze				
— bocaggi				
Anthobaphes violacea				
Cinnyris cupreus				
— notatus	*			
— superbus				
— johanna				
— splendidus				
— habessinicus				
• erythrocerus				
— marquensis				
— osiris				

[illegible]

GEOGRAPHICAL DISTRIBUTION.

	PALEARCTIC REGION.		INDIAN REGION.																					
	MEDITERRANEO-PERSIC SUBREGION.		INDIAN SUBREGION.													INDO-CHINESE SUBREGION.								
	South Arabia.	Baluchistan.	N.W. India.	Central India.	S. India.	Ceylon.	Bengal.	Gurhal.	Nepaul.	Sikkim.	Bhootan.	Assam.	Khasia Hills.	Silhet.	Tipperah.	Chittagong.	Aracan.	Burmah.	Tenasserim.	Yun-nan.	Cambodia.	Siam.	Cochin China.	Hainan.
<i>Cinnyris</i> sp. ?	*																							
<i>Ethopyga nipalensis</i>									*	*	*		*		*									
— <i>horsfieldi</i>								*	*	*	*	*	*		*				*					
— <i>saturata</i>								*	*	*	*	*	*		*				*					
— <i>sanguinipectus</i>								*	*	*	*	*	*		*				*					
— <i>dabryi</i>								*	*	*	*	*	*		*				*		*			
— <i>gouldiae</i>								*	*	*	*	*	*		*	*	*	*	*					
— <i>ignicauda</i>								*	*	*	*	*	*		*	*	*	*	*		?			
— <i>cara</i>								*	*	*	*	*	*		*			*	*	*				
— <i>seheriae</i>							*	*	*	*	*	*	*		*	*	*	*	*					
— <i>vigorsii</i>					*			*	*	*	*	*	*		*			*						
<i>Urodrepanis christinae</i>																								*
<i>Chalcostotha insignis</i>																			*					
<i>Cinnyris hassolti</i>															*	*	*	*	*					*
— <i>zeylonicus</i>					*	*	*					*	*		*	*	*	*	*					
— <i>minimus</i>					*	*	*					*	*		*	*	*	*	*					*
— <i>flammaxillaris</i>															*	*	*	*	*					*
— <i>rhizophorae</i>															*	*	*	*	*					*
— <i>lotenius</i>					*	*	*	*	*	*	*	*	*		*	*	*	*	*					*
— <i>asiaticus</i>		*	*	*	*	*	*	*	*	*	*	*	*		*	*	*	*	*	*				*
<i>Anthreptes hypogrammica</i>																			*					*
— <i>simplex</i>																		*	*	*				*
— <i>malaccensis</i>																		*	*	*				*
— <i>phoenicotis</i>											*	*	*	*	*	*	*	*	*	*				*
<i>Arachnothera magna</i>									*	*	*	*	*	*	*	*	*	*	*	*				*
— <i>aurata</i>					*				*	*	*	*	*	*	*	*	*	*	*	*				*
— <i>modesta</i>									*	*	*	*	*	*	*	*	*	*	*	*				*
— <i>longirostra</i>					*		*		*	*	*	*	*	*	*	*	*	*	*	*				*
— <i>chysogenys</i>									*	*	*	*	*	*	*	*	*	*	*	*				*

	INDIAN REGION (continued).															
	INDO-MALAY SUBREGION.															
	Malacca.	Andamans.	Nicobars.	Sumatra.	Java.	Madura.	Lombok.	Flores.	Timor.	Borneo.	Labuan.	Balabac.	Palawan.	Luzon.	Panay.	Negros.
<i>Æthopyga eximia</i>					*											
— <i>temmincki</i>				*	*					*						
— <i>mystacalis</i>				*	*											
— <i>magnifica</i>																
— <i>siparaja</i>	*			*	*					*						*
— <i>nicobarica</i>			*													
— <i>shelleyi</i>												*	*			
— <i>bella</i>																
<i>Eudrepanis pulcherrima</i>																
— <i>dubia</i>																*
<i>Chalcostotha insignis</i>	*			*	*					*	*		*			
<i>Cinnyris speratus</i>																
— <i>juliae</i>												*	*			
— <i>hasselti</i>	*			*	*					*	*					
— <i>flavicans</i>												*	*			
— <i>aurora</i>												*	*			
— <i>jugularis</i>												*	*			
— <i>andamanicus</i>		*										*	*			
* — <i>maxillaris</i>	*											*	*			
— <i>oralis</i>	*		*	*	*			*	*	*	*					
— <i>aris</i>								*	*							
— <i>hypogrammica</i>	*			*						*	*					
* — <i>x</i>	*			*						*	*					
— <i>laema</i>	*			*						*	*					
— <i>naluccensis</i>	*			*	*	*				*	*		*			
* — <i>celobensis</i>	*						*									
* — <i>chlorigastra</i>													*			
— <i>griseigularis</i>																*
* — <i>phoenicotis</i>	*			*	*					*	*					
— <i>nothura modesta</i>	*			*						*	*					
— <i>affinis</i>	*	?		*	*					*	*					
* — <i>longirostra</i>	*			*	*					*	*					
* — <i>flammifera</i>															*	
— <i>dilutior</i>												*				
— <i>chrysogenys</i>	*			*	*					*	*					
* — <i>a</i>	*			*	*					*	*					
— <i>a</i>	*			*	*					*	*					
— <i>a</i>	*			*	*					*	*					

GEOGRAPHICAL DISTRIBUTION.

[illegible]

LITERATURE.

IN reviewing the literature of the family Nectariniidæ I follow the plan adopted by Mr. Sharpe in his 'Monograph of the Kingfishers,' as his arrangement appears to me to be a clear and simple one; and I commence therefore with Linnæus's twelfth edition of the 'Systema Naturæ' (1766). Some of the species named by Linnæus were already figured or described by the older authors, such as Seba, Edwards, and Brisson; and it is on their descriptions that some of the Linnean species were founded. As the works of these authors are anterior to the year 1766, the recognized starting-point of ornithological literature, I have not specially analyzed the birds described in them; but their names will all be found quoted in the detailed synonymy of the species mentioned in the present work.

1766. LINNÆUS, C. Systema Naturæ, vol. i (8vo, Holmiæ), pp. 158–188.

The Sun-birds are placed in the genus *Certhia*, of which he recognizes twenty-five species, fifteen of these belong to the present family; but only the following eleven titles can be adopted:—7, *Certhia jugularis*; 10, *C. chalybea*; 11, *C. afra*; 13, *C. sperata*; 14, *C. senegalensis*; 15, *C. gutturalis*; 19, *C. pulchella*; 20, *C. famosa*; 22, *C. violacea*; 23, *C. zeylonica*; 25, *C. lotenia*. Four cannot be determined, viz.:—3, *C. pusilla*, a female or immature male (founded on the *Little Brown and White Creeper*, Edwards's Birds, i, pl. 26); 4, *C. capensis*, a female or immature male, possibly of *Cinnyris chalybeus* (founded on *Le Grimpereau du Cap de Bonne Espérance*, Briss. Orn. iii, p. 618, pl. 13, fig. 1); *C. currucaria*, an immature male or male in partial moult, possibly of *Cinnyris asiaticus*; 21, *C. philippina* (founded on *Le Grimpereau des Philippines*, Briss.) probably = *Cinnyris jugularis* ♀.

1769. SCOPOLI, J. A. Annus. I. Historico-naturalis (12mo, Ticini), p. 52.

Certhia viridis I formerly referred to *Cinnyris afer*; but I am now of opinion that it is not a Sun-bird at all.

1770–86. DAUBENTON. Planches Enluminées (folio, Paris).

Figures, more or less well executed, are given of certain Sun-birds, to which only French names are attached. Subsequent naturalists, however, founded specific names on some of the plates, which are quoted below.

1773. MÜLLER, P. L. S. Systema Naturæ, vol. ii (8vo), pp. 255–260, 264.

This naturalist gives Latin names to certain of the 'Planches Enluminées' of Daubenton; and as the latter are for the first time here included in an edition of Linnæus, many of the

author's titles hold good. The only addition to the nomenclature of the Sun-birds occurs in the Supplement.

1776. BROWN, PETER. New Illustrations of Zoology (4to), pp. 81, 82, pl. 32.

The Green Warbler is here figured. It is *Anthreptes phænicotis* (Temm. 1824).

1776. MÜLLER, P. L. S. Systema Naturæ, Anhang, pp. 97–100.

Le Grimpereau noir de Madagascar, Daubenton, Pl. Enl. 575, figs. 2, 3, receives the Latin name of *Certhia notata* = *Cinnyris notatus* of this work. *Certhia tricolor* (ex *Grimpereau olive des Philippines*, Pl. Enl. 576, fig. 4) = *Cinnyris jugularis* (Linn. 1766).

1776. SONNERAT. Voyage à la Nouvelle Guinée (4to), p. 63, pl. 30.

Three Sun-birds are here figured as *Premier*, *Second*, and *Troisième Grimpereaux de l'isle de Luçon*. They receive Latin names from Scopoli in 1786.

1781. LATHAM, Dr. J. General Synopsis of Birds (4to), vol. ii, pp. 702–741.

The species here have only English names; but the points I would remark upon are, that *Certhia pusilla*, Linn., is referred to a variety of *Cinnyris speratus*, and *C. capensis*, Linn., to his *Cape Creeper*, which is certainly *Cinnyris chalybeus* ♀. Both of these determinations are likely to be correct; but his assumption that the *Certhia currucaia*, Linn., should be referred to his *Grey Creeper*, ex *Grimpereau gris des Philippines*, Daubenton, Pl. Enl., is highly improbable, as *C. currucaia*, Linn., is an original description taken from a specimen sent by Governor Loten from Ceylon.

1782. SONNERAT. Voyage aux Indes Orientales et à la Chine (4to), vol. ii, pp. 208–210, pl. 116.

Good figures are here given of:—

Le Grimpereau de Malacca, = *Anthreptes malaccensis* (Scop. 1786).

Le Grimpereau vert du Cap de Bonne Espérance, = *Cinnyris afer* (Linn. 1766).

Le Grimpereau gris de la Chine is probably a *Drymæca*.

1786. SCOPOLI, J. A. Deliciæ Floræ et Faunæ Insubricæ (folio, Ticini), vol. ii, pp. 90, 91.

The author here bestows the following Latin titles upon species figured by Sonnerat (*vide antea*):—

Certhia canora (ex *Grimpereau vert du Cap de Bonne Espérance*, Sonn. Voy. Ind. ii, pl. 116, fig. 2), = *Cinnyris afer* (Linn. 1766).

Certhia malaccensis (ex *Grimpereau de Malacca*, Sonn. loc. cit. fig. 1), = *Anthreptes malaccensis* of this work.

Certhia quadricolor (ex *Premier* and *Second Grimpereau de l'isle de Luçon*, Sonn. Voy. N. Guinea, pl. 30, figs. A, B), = *Cinnyris jugularis* (Linn. 1766).

Certhia chalybea, Scop. nec Linn. 1766 (ex *Troisième Grimpereau de l'isle de Luçon*, Sonn. loc. cit. fig. D), = *Cinnyris speratus* (Linn. 1766).

1786. SPARRMAN, A. Museum Carlsonianum (4to, Holmiæ).

The following fresh Latin titles are here given to species previously named by Linnæus:—

Part ii, pl. 35. *Certhia lepida*, sp. n., hab. ?, = *Cinnyris zeylonicus* (Linn. 1766).

Part iii, pl. 58. • *C. scarlatina*, sp. n., from Cape of Good Hope, = *Cinnyris afer* (Linn. 1766).

„ pl. 59. *C. polita*, sp. n., hab. ?, = *Cinnyris lotenius* (Linn. 1766).

Part iv, pl. 79. *C. jugularis*, sp. n., from “Martinique”!, = *Cinnyris jugularis* (Linn. 1776), male in moult.

1787. LATHAM, Dr. J. General Synopsis of Birds, Supplement (4to), pp. 127–133.

Like the general body of the work, the Supplement only gives English names. The following are four additional species:—

No. 51. *Ash-bellied Creeper*, = *Cinnyris verticalis* (Lath. 1790).

No. 57. *Tufted Creeper*, = *Certhia cirrhata*, Lath., 1790, which cannot, I think, be determined, but is probably *Cinnyris zenobia*, Less. 1826.

No. 59. *Yellow-winged Creeper* (*Certhia chrysoptera*, Lath. 1790), = *Cinnyris asiaticus* (Lath. 1790).

No. 60. *Long-billed Creeper*, = *Arachnothera longirostra* (Lath. 1790).

1788. GMELIN, O. P. Linnæi Systema Naturæ (8vo), vol. i, pp. 469–483, 964.

Twenty-five species of the genus *Certhia* and one *Motacilla* appear to be Sun-birds. For fifteen of these, Linnean titles are employed; and for one of them a name of Scopoli's is adopted. Of the remaining ten,

Certhia souinanga (ex *Le Soui-manga*, Montb. 1778) = *Cinnyris souinanga* of this work.

C. brasiliانا (ex *Le Grimpereau violet du Brésil*, Briss. 1760) = *Cinnyris hasselti* (Temm. 1825). The name *brasiliانا* is to be rejected, as conveying a wrong idea of the habitat of the bird.

Motacilla singalensis (ex *Green Warbler*, Brown, 1876) = *Anthreptes phænicotis* (Temm. 1824). This species being unknown in Ceylon, the name *singalensis* cannot be employed.

The following fresh titles become synonyms of already published names:—

Certhia aurantia (ex *Orange-breasted Creeper*, Lath. 1781) and *C. cinerea* (ex *Cinereous Creeper*, Lath. 1781), = *Anthobaphes violacea* (Linn. 1766).

C. omnicolor (ex *Avis zeylonicus omnicolor*, Seba);

C. falcata (ex *Sickle-billed Creeper*, Lath.);

C. maccassariensis (ex *Avis Thioci*, Seba):

All three names probably belong to *Cinnyris lotenius* (Linn. 1766).

I cannot say to what species *Certhia indica* (ex *Polytmus cæruleus indicus*, Briss.) should be referred; and *C. manillensis* is equally difficult to determine, unless Latham is correct in the additional characters which he ascribes to this species (Ind. Orn. i, p. 283), which would lead one to the belief that it may possibly be intended for *Anthreptes chlorigastra*, Sharpe, 1875.

1790. LATHAM, Dr. J. Index Ornithologicus (4to), vol. i, pp. 280–301.

Seventy-four species of *Certhia* are enumerated; but of these only thirty-two appear to belong to our family. The following six new names are given by the author:—

No. 22. *Certhia asiatica*, sp. n., from India, = *Cinnyris asiaticus* of this work.

No. 26. *C. tabacina* (ex *Snuff-coloured Creeper*, Lath. 1787), = *Nectarinia famosa* (Linn. 1766). ♂ in moult.

No. 57. *C. verticalis* (ex *Ash-billed Creeper*, Lath. 1787), = *Cinnyris verticalis* of this work.

No. 60. *C. lepida* (nec Sparrm., ex *Le Grimpereau de Malacca*, Sonn. 1782), = *Anthreptes malaccensis* (Scop. 1786).

No. 62. *C. cirrhata* (ex *Tufted Creeper*, Lath. 1787), = probably *Cinnyris zenobia*, Less. 1826.

No. 64. *C. chrysoptera* (ex *Yellow-winged Creeper*, Lath. 1787), = *Cinnyris asiaticus* (Lath. tom. cit.).

No. 65. *C. longirostra* (ex *Long-billed Creeper*, Lath. 1787), = *Arachnothera longirostra* of this work.

1790–1813. SHAW, GEORGE, and NODDER, FREDERICK P. *Vivarium Naturæ, or Naturalist's Miscellany*. 24 vols. (8vo.)

Certhia famosa, Linn., is figured (vol. i, pl. 19).

Saffron Creeper (vol. vi, pl. 210) = *Anthobaphes violacea* (Linn.).

Certhia venusta, sp. n., from Sierra Leone (vol. x, pl. 309), = *Cinnyris venustus* of this work.

Certhia chalybea, Linn. (tom. cit. pl. 381).

Certhia gutturalis, Linn. (vol. xix, pl. 797).

1801. LATHAM, Dr. J. *General Synopsis of Birds*, 2nd Supplement (4to), pp. clviii–clxiv.

The following three additional species of Sun-birds are described:—

No. 18. *Crimson-bellied Creeper*, = probably *Cinnyris splendidus* (Shaw, 1811).

No. 19. *Leona Creeper*, = *Cinnyris venustus* (Shaw, 1799).

No. 20. *Mahratta Creeper*, = *Cinnyris asiaticus* (Lath. 1790).

1801. LATHAM, Dr. J. *Index Ornithologicus*, Supplement (4to), vol. ii, pp. xxxv, xxxvi.

The first three species of *Certhia* here enumerated are Sun-birds:—

No. 1. *Certhia coccinigastra* (ex *Crimson-bellied Creeper*, Lath. 1801). This is probably the same as *Cinnyris splendidus* (Shaw, 1811), which latter title I prefer to retain for this species, as Latham's description is not quite conclusive, and might apply also to *Cinnyris johannæ* (Verr. 1851).

No. 3. *Certhia mahrattensis* (ex *Mahratta Creeper*, Lath. 1801), = *Cinnyris asiaticus*, Lath. 1790.

1802. AUDEBERT, J. B., and VIEILLOT, L. P. *Oiseaux dorés ou à reflets métalliques* (folio, Paris), vol. ii.

This is a monograph of the family; but only French names are given to the species. The figures are generally very good; and hence there is no difficulty in recognizing the specific names which have been founded on them by subsequent authors. It also affords us an idea of the number of species of Sun-birds known to science at the beginning of our century. They appear to have been nineteen in number, to which the present authors add the following eight:—

Eclatant, = *Cinnyris splendidus* (Shaw, 1811).

Souï-manga à front doré, = *Cinnyris amethystinus* (Shaw, 1811).

Souï-manga carmelite, = *Cinnyris fuliginosus* (Shaw, 1811).

Souguimbondon, = *Cinnyris superbus* (Shaw, 1811).

Soui-manga bicolor and *Soui-manga rouge doré*, = *Cinnyris cupreus* (Shaw, 1811).

Soui-manga vert et brun, = *Cinnyris bifasciatus* (Shaw, 1811).

Soui-manga à bec droit, = *Anthreptes rectirostris* (Shaw, 1811).

Soui-manga à collier, = *Cinnyris chloropygius* (Jard. 1842).

1804. HERMANN, J. *Observationes Zoologicæ* (4to), pp. 136, 137.

The author here gives three fresh titles:—

Certhia flaviventris and *C. citrinella*, both = *Cinnyris zeylonicus* (Linn. 1766).

C. nitens, = *Cinnyris asiaticus* (Lath. 1790).

1808. LEVAILLANT, FRANÇOIS. *Histoire Naturelle des Oiseaux d'Afrique* (4to, Paris), vol. vi, pp. 143–178.

Fourteen species are here figured and described; but only French names are given. Of these *Le Sucrier cardinaline* has been proved to have been a made-up bird; and we may therefore doubt *Le Sucrier bronzé* and *Le Sucrion* ever having been really obtained by Levaillant, as they cannot be determined.

One species is new, *Le Sucrier gamtocin* ou *Sucrion à cordon bleu*, = *Anthreptes collaris* (Vieill. 1819).

1811. ILLIGER. *Prodromus Systematis Mammalium et Avium* (8vo, Berlin), p. 210.

The genus *Nectarinia* is characterized. Type *N. famosa* (Linn.).

1811. SHAW, Dr. G. *General Zoology* (8vo), part Aves, vol. viii, pp. 188–271.

The author here brings the synopsis of the genus *Certhia*, as then understood, down to the time of writing, and gives Latin titles to the following species figured by Aud. et Vieill. Ois. Dorés, 1802:—

Certhia splendida, *C. superba*, *C. amethystina*, *C. bifasciata*, *C. cuprea*, *C. fuliginosa*, *C. rectirostris*, all of which names stand good, while the following of his titles sink into synonyms:—

Certhia angladiana, = *Cinnyris notatus* (P. L. S. Müll. 1776).

C. purpurata, = *C. lotenius* (Linn. 1766).

C. cyanocephala, = *C. verticalis* (Lath. 1790), ♂.

C. dubia, = *C. zeylonicus* (Linn. 1766), ♀ or young.

C. affinis, = *C. speratus* (Linn. 1766).

C. rubrofusca, = *C. cupreus* (Shaw, loc. cit.).

C. saccharina, = *C. asiaticus* (Lath. 1790).

1812. BECHSTEIN, J. M. *Kurze Uebersicht aller bekannten Vögel oder ihre Kennzeichen der Art nach Latham's Synopsis of Birds und seiner Index Ornithologicus* (4to, Nürnberg), pp. 177–194.

Besides entering the species referred to by Latham, he gives Latin names to the additional species figured and described by Audebert et Vieillot, Ois. Dor. These are:—

Certhia nitida, = *Cinnyris splendidus* (Shaw, 1811).

C. aurifrontalis, = *C. amethystinus* (Shaw, 1811).

- C. cyanocephala*, = *C. verticalis* (Lath. 1790).
C. fuliginosa, = *C. fuliginosus* (Shaw, 1811).
C. suguimbindo, = *C. superbus* (Shaw, 1811).
C. dubia, = *C. verticalis* Lath. 1790).
C. aurata, = *C. cupreus* (Shaw, 1811).
C. cincta, = *C. asiaticus* (Lath. 1790).
C. rectirostris, = *Anthreptes rectirostris* (Shaw, 1811).

1814. STANLEY, Lord. Henry Salt's Voyage to Abyssinia and Travels into the interior of that country executed under the orders of the British Government in the years 1809 and 1810 (4to), App. iv, pp. xlvii, lviii.

Certhia tacazze, sp. n., is here described (App. p. 58), = *Nectarinia tacazze* of this work.

1817. CUVIER, F. G. Le Règne Animal distribué d'après son organisation, pour servir de base à l'Histoire Naturelle des Animaux et d'introduction à l'anatomie comparée (8vo, Paris), vol. i, p. 412.

Cinnyris, n. gen., described. Type *C. splendidus* (Shaw).

1819. VIEILLOT, L. P. Nouveau Dictionnaire d'Histoire Naturelle (8vo, Paris), vol. xxxi, pp. 492–516.

Under Cuvier's generic title *Cinnyris* the author here gives a full list of all the species of Sun-birds known to him.

Four of his names stand. These are:—

Cinnyris platurus (ex *Sucrier figuier*, Levaill.), = *Hedydipna platura* of this work.

C. collaris (ex *Sucrier gamtocin ou à cordon bleu*, Levaill.), = *Anthreptes collaris* of this work.

C. fuscus (ex *Sucrier namaquois ou à caleçon blanc*, Levaill.), = *Cinnyris fuscus* of this work.

C. leucogaster, sp. n., = *C. leucogaster* of this work.

Twenty fresh titles are applied either to species previously named, or to species which cannot be accurately determined. These are:—

C. subflavus, sp. n., = probably *Aethopyga gouldiæ* (Vig. 1831).

C. indicus (ex *Certhia asiatica*, Lath.), = *Cinnyris asiaticus* (Lath. 1790).

C. anea, Vieill. nec Sparrm. (ex *Sucrier bronzé*, Levaill.), is a fictitious species.

C. pectoralis (ex *Soui-manga à ceinture bleue*, Aud. et Vieill. Ois. Dor.), = *C. afer* (Linn. 1766).

C. virescens (ex *Soui-manga à ceinture orange*, Aud. et Vieill. tom. cit.), = *Cinnyris asiaticus* (Lath. 1790).

C. jugularis, Vieill. nec Linn. (ex *Soui-manga à cravatte bleue*, Aud. et Vieill. tom. cit.), = *Cinnyris asiaticus* (Lath. 1790). Male in moult.

C. splendens (ex *Eclatant*, Aud. et Vieill. tom. cit.), = *Cinnyris splendidus* (Shaw, 1811).

C. auratifrons (ex *Soui-manga à front doré*, Aud. et Vieill. tom. cit.), = *Cinnyris amethystinus* (Shaw, 1811).

C. cinereicollis, sp. n., = *Arachnothera longirostra* (Lath. 1790).

C. elegans (ex *Soui-manga à bec droit*, Aud. et Vieill. tom. cit.), = *Anthreptes rectirostris* (Shaw, 1811).

- C. rubescens*, sp. n., = probably *Cinnyris angolensis*, Less. 1831.
C. erythrothorax, sp. n., = probably *Cinnyris amethystinus* (Shaw, 1811).
C. perreini, sp. n., from the Congo, may possibly = *Nectarinia bocagii*, Shelley, 1879.
C. caudatus (ex *Soui-manga à longue queue*, Aud. et Vieill. tom. cit.), = *Nectarinia pulchella* (Linn. 1766).
C. smaragdinus (ex *Sucrier à plastron rouge*, Levaill.), = *Cinnyris afer* (Linn. 1766).
C. bombicinus (ex *Soui-manga à plumes soyeuses*, Aud. et Vieill. tom. cit.), = *Cinnyris splendidus* (Shaw, 1811).
C. nibeus (ex *Soui-manga rouge doré*, Aud. et Vieill. tom. cit.), = *Cinnyris cupreus* (Shaw, 1811).
C. sola, sp. n., = *Cinnyris zeylonicus* (Linn. 1766).
C. tricolor (ex *Soui-manga tricolor*, Aud. et Vieill. tom. cit.), = *Cinnyris cupreus* (Shaw, 1811).
C. discolor (ex *Soui-manga violet à plastron rouge*, Aud. et Vieill. tom. cit.), = *Cinnyris senegalensis* (Linn. 1766).
1820. HORSFIELD, T. Systematic Arrangement and Descriptions of Birds from the Island of Java. Linn. Trans. vol. xiii, pp. 166–168.
The following three new Sun-birds are described:—
Cinnyris affinis, sp. n., = *Arachnothera affinis* of this work.
Nectarinia pectoralis, sp. n., = *Cinnyris pectoralis* of this work.
N. eximia, sp. n., = *Æthopyga eximia* of this work.
1820. RAFFLES, Sir T. STAMFORD. Descriptive Catalogue of a Zoological Collection made in the Island of Sumatra and its vicinity, under the direction of Sir T. S. Raffles, with additional Notes illustrative of the Natural History of those countries. Linn. Trans. vol. xiii, pp. 298, 299.
Certhia siparaja, sp. n., = *Æthopyga siparaja* of this work.
- 1820–33. SWAINSON, WILLIAM. Zoological Illustrations. 6 vols. (8vo, London).
Cinnyris chalybeus is figured (vol. ii, pl. 95).
1822. BURCHELL, WILLIAM J. Travels in the interior of South Africa (4to, London), vol. i.
Sun-birds are referred to on pp. 17, 222, 245.
1822. LATHAM, Dr. J. General History of Birds (4to), vol. iv, pp. 213–285.
Here the following species are recognized, but only English names are given:—
Goulpourah Creeper, = *Æthopyga seheriæ* (Tick. 1833).
Violet-tailed Creeper, = *Cinnyris affinis* (Rüpp. 1835).
1823. BONNATERRE, l'Abbé, et VIEILLOT, L. P. Tableau Encyclopédique et Méthodique des trois Règnes de la Nature. Ornithologie (4to, Paris), 2^e partie, pp. 583, 600.
The authors here give the following fresh titles:—
No. 63. *Cinnyris ruficollis*, sp. n., from the Indian region, = *Anthreptes malaccensis* (Scop. 1786).

No. 64. *C. violaceofrons*, sp. n., from Africa, = *Anthobaphes violacea* (Linn. 1766).

No. 65. *C. nigrescens*, from an unknown locality. I am unable to determine this species; but it would appear to be one of the dark Asiatic Sun-birds with yellow pectoral tufts.

No. 66. *C. nigrogaster*, from an unknown locality. Probably *C. cupreus* (Shaw, 1811).

1823. LICHTENSTEIN, H. Verzeichniss der Doubletten des zoologischen Museums der königl. Universität zu Berlin, nebst Beschreibung vieler bisher unbekannten Arten von Säugethieren, Vögeln, Amphibien und Fischen (4to, Berlin), p. 15.

The author here introduces the following new titles:—

No. 130. *Nectarinia aurifrons*, nom. emend. pro *Certhia aurifrontalis*, Bechst., = *Cinnyris amethystinus* (Shaw, 1811).

No. 131. *N. melampogon*, Ill. fide Licht., = *Nectarinia pulchella* (Linn. 1766).

No. 132. *N. cyanopygos*, sp. n., from Senegal, = *Hedydipna platura* (Vieill. 1819).

No. 133. *N. metallica*, sp. n., from Dongola, = *Hedydipna metallica* of this work.

1823. TEMMINCK, C. J. Nouveau Recueil de Planches coloriées d'Oiseaux (folio, Paris, 1823-26).

In 1823 the following figures were published:—

Plate 84, fig. 1. *Nectarinia longirostra* (Lath.).

„ „ fig. 2. *N. inornata*, sp. n., from Java, = *Arachnothera affinis* (Horsf. 1820).

„ 126, fig. 1, ♂, 2, ♀. *N. lepida*, Temm. (nec Sparrm. 1786), = *Anthreptes malaccensis* (Scop. 1786).

„ „ fig. 3, ♂. *N. mystacalis*, sp. n., from Java, = *Æthopyga mystacalis* of this work.

„ 138, fig. 1, ♂, 2, ♀. *N. eximia*, Temm. (nec Horsf. 1820), = *Cinnyris pectoralis*, Horsf. 1820.

„ „ fig. 3, ♂. *N. pectoralis*, Temm. (nec Horsf. 1820), = *Chalcostetha insignis*, Jard. 1842.

1823. VIGORS, N. A. Observations on the Natural Affinities that connect the Orders and Families of Birds. Linn. Trans. vol. xiv, pp. 461-468.

The author here divides the order Tenuirostres into the following five families:—

Nectariniidæ, Cinnyridæ, Trochilidæ, Promeropidæ, Meliphagidæ.

1824. TEMMINCK, C. J. Planches Coloriées (*vide supra*).

In 1824 the author published:—

Plate 108, fig. 1, ♂. *Nectarinia phœnicotis*, sp. n., from Java and Sumatra, = *Anthreptes phœnicotis* of this work.

1825. TEMMINCK, C. J. Planches Coloriées (*vide supra*).

The livraisons published by the author in 1825 contain:—

Plate 347, figs. 1, ♂, 2, ♀. *Nectarinia metallica*, Licht., and in a note *N. sylviella* (ex *Sucrier figuier*, Levaill.), = *Hedydipna platura* (Vieill. 1819).

Plate 347, fig. 3. *N. solaris*, sp. n., from Amboyna!, = *Cinnyris solaris* of this work.

„ 376, figs. 1, ♂, 2, ♀. *N. kuhlii*, sp. n., from Java, = *Æthopyga eximia*, Horsf. 1820.

„ „ fig. 3, ♂. *N. hasseltii*, sp. n., from Java, = *Cinnyris hasseltii* of this work.

1825. VIEILLOT, L. P., and OUDAET, P. *Galerie des Oiseaux* (4to, Paris), vol. i, pp. 291, 292, pls. 177, 178.

Figures are here given of:—

Cinnyris lepidus (Lath. 1790, nec Sparrm. 1785), pl. 177, = *Anthreptes malaccensis*, Scop.
Cinnyris elegans, pl. 178, = *Anthreptes rectirostris* (Shaw).

1826. RÜPPELL, EDWARD. *Atlas zu der Reise im nördlichen Afrika*, Vögel (folio), p. 10.
Nectarinia metallica, Licht., is figured (pl. 7).

1826. STEPHENS, JAMES FRANCIS. *General Zoology*. Vol. xiv, part i, pp. 228–235.

Page 233. *Cinnyris saccharina*, Steph. (nec Shaw, 1811) (ex *Le Sucrier figuier*, Levaill.), = *Hedydipna platura* (Vicill. 1819).

1826. TEMMINCK, C. J. *Planches Coloriées* (*vide supra*).

The following was published by the author in 1826:—

Plate 388, fig. 1. *Nectarinia chrysogenys*, sp. n., from Java, = *Arachnothera chrysogenys* of this work. In the accompanying letterpress he describes *Arachnothera*, gen. n., type *A. chrysogenys*, Temm., and includes in the genus *A. longirostra* (Lath.) and *A. affinis* (Horsf.).

Plate 388, fig. 2, ♀. *N. phænicotis*, Temm.

„ „ fig. 3, ♂. *N. coccinigastra*, Temm. (nec Lath. 1801), = *Cinnyris speratus* (Linn. 1766).

1827. DUMONT. *Dictionnaire des Sciences Naturelles* (8vo, Paris), vol. 1, pp. 1–36.

In my synonymy I have by error quoted this work as “Less. Dict. Sc. Nat. vol. i.”

Under the heading of *Soui-manga* M. Dumont de St. Croix gives a list of the Sun-birds recognized by him. Amongst these the following fresh names appear:—

Page 6. *Cinnyris nigralba* (ex *Soui-manga brun et blanc*, Aud. et Vieill. Ois. Dor. pl. 81), = *Cinnyris zeylonicus* (Linn. 1766).

Page 15. *C. ornatus* (ex *Nectarinia eximia*, Temm. Pl. Col. 138), = *C. pectoralis* (Horsf. 1820).

„ 18. *C. clementiæ* (ex *Cinnyris zenobia*, Less. 1826), = *C. zenobia*, Less. 1826.

„ 21. *C. sericeus* (ex *C. aspasia*, Less. 1826), = *C. aspasiæ*, Less. 1826.

„ 24. *C. iodeus* (ex *Soui-manga violet*, Aud. et Vieill. Ois. Dor. pl. 12), = *C. asiaticus*, Lath. 1790.

1828. HEMPRICH, F. G., and EHRENBERG, C. G. *Symbolæ Physicæ seu Icones et Descriptiones corporum naturalium novorum aut minus cognitorum quæ ex itineribus per Libyam, Ægyptum, Nubiam, Dongalam, Syriam, Arabiam, et Habessiniam &c.* (folio), Zoologica, part i. Berlin.

Nectarinia metallica, Licht., is figured, pl. 1.

N. habessinica, sp. n., from Abyssinia, is figured, pl. 4, = *Cinnyris habessinicus* of this work.

1828. LESSON, R. P. *Manuel d'Ornithologie, ou description des genres et des principales espèces d'Oiseaux* (12mo, Paris), vol. ii, 1828, pp. 22–61.

1828. LESSON, R. P., in 'Voyage autour du monde, exécuté par ordre du Roi, sur la corvette de sa Majesté "La Coquille," pendant les années 1822, 1823, 1824, 1825' (4to, Paris), vol. i, part 2, pp. 674-679, pl. 30.
 No. 100. *Cinnyris aspasia*, sp. n., from Dorey.
 No. 104. *C. zenobia*, sp. n., from Amboyna.
 Both species are well figured.
1829. DRAPIER, in 'Dictionnaire classique d'Histoire Naturelle' (8vo, Paris), pp. 508-515.
 The Sun-birds are placed in the genus *Nectarinia*.
1829. GRIFFITH, EDWARD, and PIDGEON, EDWARD. The Class Aves arranged by the Baron Cuvier, with specific descriptions (8vo, London), pp. 390-393, pl.
The Long-billed Souimanga is figured, = *Arachnothera longirostris* (Lath.).
1830. QUOY et GAIMARD. Voyage de découvertes de 'l'Astrolabe' exécuté par ordre du Roi, pendant les années 1826-29, sous le commandement de N. J. Dumont d'Urville. Zoologie (8vo), vol. i, p. 225.
1831. FRANKLIN, Major James. Catalogue of Birds (systematically arranged) which were collected on the Ganges between Calcutta and Benares, and in the Vindhyan hills between the latter place and Gurrah Mundela on the Nerbudda. P. Z. S. 1831, p. 122.
Cinnyris orientalis, sp. n., = *C. asiaticus* (Lath. 1790).
1831. LESSON, R. P. Traité d'Ornithologie (8vo, Paris), vol. i, pp. 291-322.
Cinnyris croceus (ex *Sucrier orange* ♀, Levaill.), = *Anthobaphes violacea* (Linn. 1766).
"C. metallica, Licht.," from S. Africa, = *Anthreptes collaris* (Vieill.).
C. angolensis, sp. n., from Angola, = *Cinnyris angolensis* of this work.
C. lucidus (ex *L'Eclatant*, Aud. et Vieill. Ois. Dor.), = *C. splendidus* (Shaw, 1811).
C. sanguineus, sp. n., from Angola, = *C. superbus* (Shaw, 1811).
C. ruber, sp. n., hab. ?, = *C. hasseltii* (Temm. 1825).
C. thoracicus, sp. n., from a specimen in the Paris Museum, = *C. leucogaster*, Vieill. 1819 (type examined).
C. solaris, sp. n., from India, Less. (nec Temm. 1825), = *C. zeylonicus* (Linn. 1766).
C. luteoventer, sp. n., from the Sunda Islands, = *C. pectoralis* (Horsf. 1820).
1831. LESSON, R. P. Zoologie. Bulletin des Sciences naturelles et de Géologie, vol. xxv, pp. 242, 243.
Cinnyris longuemarei, sp. n., from Senegal, = *Anthreptes longuemarii* of this work.
1831. LESSON, R. P. Illustrations de Zoologie (8vo, Paris).
Cinnyris longuemarei is figured, pl. 23.
1831. SMITH, ANDREW. Contributions to the Natural History of South Africa, &c. South African Quarterly Journal (8vo, Cape-town), part 5, p. 13.
Cinnyris veraxii, sp. n., from Caffraria, = *Cinnyris verreauxi* of this work.

1831. SWAINSON, WILLIAM. *Fauna Boreali-Americana*.—Birds (4to, London), App. pp. 495, 496.
Anthreptes, gen. n. Type *A. malaccensis* (Scop.).
1831. VIGORS, N. A. On Birds from the Himalayan Mountains. P. Z. S. 1831, p. 44.
Cinnyris gouldiæ, sp. n., = *Æthopyga gouldiæ* of this work.
1832. GOULD, JOHN. A Century of Birds from the Himalaya Mountains (folio, London).
Cinnyris gouldiæ, Vig., is figured, pl. 56.
1832. KITTLITZ, F. H. VON. Kupfertafeln zu Naturgeschichte der Vögel (8vo, Frankfurt am Main), p. 22, pl. 28.
Nectarinia purpurata, sp. n., from Abyssinia, is figured, = *Cinnyris habessinicus* (Hempr. & Ehr. 1828).
1832. SYKES, Lieut.-Colonel W. H. Catalogue of Birds of the Raptorial and Insectorial Orders observed in the Dukhun. P. Z. S. 1832, pp. 88, 89.
The following fresh names are given:—
Cinnyris vigorsii, sp. n., = *Æthopyga vigorsi* of this work.
C. minima, sp. n., = *Cinnyris minimus* of this work.
C. concolor, sp. n., = *Æthopyga vigorsi* ♀.
1832. WARLOW, Dr. Catalogue of Indian Birds. J. A. S. B. vol. i, p. 320.
1833. TICKELL, Lieut. S. R. List of Birds collected in the Jungles of Barabhum and Dholbhum. J. A. S. B. vol. ii, p. 577, 1833.
Nectarinia seheriæ, sp. n., = *Æthopyga seheriæ* of this work.
1834. GERVAIS, P. Magasin de Zoologie, vol. iii, pl. 19.
Cinnyris adelberti, sp. n., from Senegal, = *Cinnyris adelberti* of this work. A good figure of this species is given.
1834. HANN, Dr. C. W. Ornithologischer Atlas, oder naturgetreue Abbildung und Beschreibung der ausser-europäischen Vögel (8vo, Nürnberg), part 8, pp. 1–4, pls. 1–3.
The following species are figured:—
Cinnyris senegalensis (Linn.), pl. 1.
C. chalybeus (Linn.), pl. 2.
C. famosa (Linn.), pl. 3.
1834. MEYEN, Dr. F. J. F. Reise um die Erde, ausgeführt auf dem königlich preussischen Seehandlungsschiffe 'Prinzess Louise,' commandirt von Capitän W. Wendt, in den Jahren 1830, 1831, und 1832. Beiträge zur Zoologie, gesammelt auf einer Reise um die Erde. Vierte Abhandlung, p. 206.
Nectarinia philippensis, sp. n. (ex *Certhia philippina purpurea*, Briss.), = *Cinnyris speratus* (Linn.).

1834. SYKES, Lieut.-Colonel W. H. Catalogue of Birds from the Dukhun. J. A. S. B. vol. iii, pp. 542, 543.
1835. NORDMANN, Dr. ALEXANDER VON. In 'Erman's Reise um die Erde,' Atlas (folio, Berlin), p. 6. *Nectarinia nitida*, = *Cinnyris splendida*, and *C. senegalensis* are here recorded from Prince's Island (where, however, they do not really occur), *fide* Dr. Dohrn, P. Z. S. 1866, p. 331.
1835. RÜPPELL, Dr. E. Neue Wirbelthiere zu der Fauna von Abyssinien gehörig. Vögel (folio, Frankfurt am Main), pp. 87-90, pl. 31.
Cinnyris affinis, n. sp., = *Cinnyris affinis* of this work.
C. gularis, = *C. habessinicus*, male in moult.
C. proteus, = *C. cruentatus* (Rüpp. 1845). Although this is the first application of the name *proteus*, it is clearly intended by the author to apply to *Le Sucrier protée* of Levaillant, with which bird he considered the Abyssinian form to be identical.
The plate contains figures of *Cinnyris affinis*, Rüpp., *C. gularis*, Rüpp., and *C. tacazze* (Stanley).
1836. SMITH, Dr. ANDREW. Appendix to the Report of the Expedition for exploring Central Africa (8vo, Cape-town), p. 53.
Cinnyris mariguensis, sp. n., from South Africa.
C. talatala, sp. n., from South Africa, = *C. leucogaster*, Vieill. 1819.
1837. LESSON, R. P. Complément des œuvres de Buffon (8vo, Paris), vol. ix, pp. 156-160.
1837. SWAINSON, W. On the Natural History and Classification of Birds (12mo), vol. ii, pp. 328, 329.
Arachnothera is referred to the family Meliphagidæ; and his family Cinnyridæ comprises *Melithreptes*, *Cinnyris*, *Anthreptes*, *Nectarinia*, and *Dicaeum*.
1837. SWAINSON, W. Birds of West Africa (12mo), vol. ii, pp. 123-147, pls. 14-17.
The author here bestows the following fresh names:—
Arachnothera flavigenis, = *Arachnothera chrysogenys*, Temm.
Cinnyris erythronotus, = *C. cupreus* (Shaw, 1811).
C. chloronotus, = *C. verticalis* (Lath. 1790).
C. pusillus, = *C. venustus* (Shaw, 1799).
Anthreptes leucosoma, = *A. longuemarii* (Less. 1831).
1839. EYTON, T. C. Catalogue of a Collection of Birds from Malaya, with Descriptions of the New Species. P. Z. S. 1839, pp. 101, 105.
Anthreptes flavigaster, sp. n., = *Arachnoraphis flavigastra* of this work.
A. modesta, sp. n., = *Arachnothera modesta* of this work.
1839. HORSFIELD, Dr. T. List of Mammalia and Birds collected in Assam by John M^cClelland, Esq. P. Z. S. 1839, p. 167.
The following fresh titles are here given by Mr. M^cClelland:—

Cinnyris assamensis, = *Æthopyga saturata* (Hodgs. 1837).

C. labecula, = *Æ. seheriæ* (Tickell, 1833).

Arachnothera inornata, M'Cl. (nec Temm. 1823), = *Arachnothera magna* (Hodgs. 1837).

1839. ROYLE, J. FORBES. Illustrations of the Botany and other Branches of the Natural History of the Himalayan Mountains and of the Flora of Cashmere. 2 vols. (folio, London).
Certhia goalpariensis and nest are figured (vol. ii, pl. 7).

1840. JERDON, T. C. Catalogue of the Birds of the Peninsula of India, arranged according to the modern system of Classification; with brief Notes on their Habits and Geographical Distribution, and Description of new, doubtful, and imperfectly described Species. Madras Journal, vol. xi, pp. 224–227.

1840. LESSON, R. P. Notices ornithologiques. Revue Zoologique (8vo, Paris, 1840), p. 273.

1841. BLYTH, EDWARD. Report. J. A. S. B. vol. x, p. 925.

Cinnyris vigorsii is here recorded as common in Tenasserim; but this is evidently an error.

Anthreptes rectirostris, Blyth (nec Shaw, 1811), = *Anthreptes phænicotis* (Temm. 1824).

1842. BLYTH, EDWARD. Report, Aves. J. A. S. B. vol. xi.

Two names are given; but they are unaccompanied by descriptions. They are:—

Cinnyris horsfieldi, sp. n., = *Æthopyga horsfieldi* (Blyth, 1843).

Anthreptes macularia, sp. n., = *Anthreptes hypogrammica* (S. Müller, 1843).

1842. BLYTH, EDWARD. Notes on various Indian and Malayan Birds, with Descriptions of some presumed new Species. J. A. S. B. vol. xi, p. 192.

Cinnyris rubricaudata, sp. n., with no description, = *Æ. ignicauda* (Hodgs. 1837).

1842. JARDINE, Sir WILLIAM. Horæ Zoologicæ. No. V. Description of some Birds collected during the last Expedition to the Niger. Ann. & Mag. Nat. Hist. vol. x, pp. 187–190.

Nectarinia strangeri, sp. n., from the Niger, = *Cinnyris angolensis*, Less. 1831.

Nectarinia chloropygia, sp. n., from the Niger, = *Cinnyris chloropygius* of this work.

1842. JARDINE, Sir WILLIAM. The Naturalist's Library, v, 1842, Sun-birds (12mo, Edinburgh, 1842), pp. 166–276, pls. 1–30.

The author here gives the following new names:—

Page 181. *Nectarinia parvula*. He corrects this name on pl. 7, and again at p. 252 into *N. venusta* (Shaw).

N. natalensis, = *Cinnyris gutturalis* (Linn. 1766).

N. minuta, = *Cinnyris minimus*, Sykes, 1832.

N. lathamii, = *Æthopyga siparaja* (Raffles, 1820).

N. hodgsonis, = *Æthopyga saturata* (Hodgs. 1837).

N. phænicura, = *Æthopyga ignicauda* (Hodgs. 1837).

N. eboensis, = *Cinnyris adelberti*, Gerv. 1834.

N. obscura, sp. n., from Fernando Po, = *Cinnyris obscurus* of this work.

Page 263. *N. chalcostetha*, and p. 274, *N. insignis* (*N. pectoralis*, Temm.), = *Chalcostetha insignis* of this work.

1843. BLYTH, EDWARD. Report for December Meeting. J. A. S. B. xii, pp. 969–982, 1008.

Page 972. The author recognizes *Cinnyris rubricauda*, Blyth, 1842, as synonymous with *Æthopyga ignicauda* (Hodgs. 1837).

Page 975. *Nectarinia horsfieldi*, sp. n., from the Himalaya Mountains, = *Æ. horsfieldi* of this work.

Page 975. *Nectarinia jugularis* apud Blyth, = *Cinnyris flammixillaris* (Blyth, 1845).

Page 980. *Anthreptes nuchalis*, sp. n., from Singapore, = *A. macularia*, Blyth, 1842, sine descr., = *A. hypogrammica* (S. Müll. 1843).

Page 982. *Arachnothera lutirostris*, sp. n., from Singapore, = *A. modesta* (Eyton, 1839).

Page 1008. *Nectarinia phayrei*, sp. n., from Arracan, = *Cinnyris hasseltii* (Temm. 1825).

1843. GOULD, JOHN. On the Collection made during the voyage of H.M.S. 'Sulphur.' P. Z. S. 1843, p. 104.

Nectarinia flavigastra, sp. n., from New Ireland, = *Cinnyris frenatus* (S. Müll. 1843).

1843. JARDINE, Sir WILLIAM, and SELBY, PRIDEAUX JOHN. Illustrations of Ornithology (4to, Edinburgh), vol. iv, pls. 48–52.

The following species are figured:—

Plate 48. *Nectarinia strangeri*, = *Cinnyris angolensis*, Less.

„ 49. *N. adelberti*.

„ 50. *N. chloropygia*.

„ 51. *N. obscura*.

„ 52. *Anthreptes fraseri*, sp. n., from Fernando Po.

1843. MÜLLER, SALOMON. Verhandelingen over de natuurlijke geschiedenis der Nederlandsche overzeesche bezittingen, door de leden der natuurkundige commissie in Ost-Indië en andere schrijvers. Land- en Volkenkunde (folio, Leiden, 1839–1844), p. 173.

Nectarinia simplex, sp. n., from Sumatra and Borneo, = *Anthreptes simplex* of this work.

N. hypogrammica, sp. n., from Sumatra and Borneo, = *Anthreptes hypogrammica* of this work.

N. frenata, sp. n., from New Guinea and Celebes, = *Cinnyris frenatus* of this work.

N. temminckii, sp. n., from Sumatra, = *Æthopyga temminckii* of this work.

1844. GOULD, JOHN. The Zoology of the Voyage of H.M.S. 'Sulphur,' under the command of Captain Sir Edward Belcher, R.N., C.B., F.R.G.S., &c., during the years 1836–42 (4to, London), Birds, p. 43, pl. 24.

Nectarinia flavigastra is figured, = *Cinnyris frenatus* (S. Müll.).

1844. HODGSON, B. II. In Gray's Zoological Miscellany, 1844, p. 82.

The following titles occur here:—

Cinnyris epimacurus, = *Æ. ignicauda* (Hodgs. 1837).

Arachnothera chrysopus, = *Arachnothera magna* (Hodgs. 1837).

1845. BLYTH, EDWARD. Notice and Descriptions of various new or little-known Species of Birds. J. A. S. B. vol. xiv, pp. 557, 558.

Nectarinia flammixillaris, sp. n., from Tenasserim, = *Cinnyris flammixillaris* of this work.

N. frontalis, sp. n., from Singapore, = *Anthreptes simplex* (Müll. 1843).

The author recognizes the following synonyms:—

Arachnothera latirostris, Blyth, 1843, = *A. modesta* (Fyton, 1839).

Nectarinia phayrei, Blyth, 1843, = *Cinnyris hasseltii* (Temm. 1825).

- 1845–50. DES MURS, O. Voyage en Abyssinie exécuté pendant les années 1839, 1840, 1841, 1842, 1843, par une commission scientifique composée de M. Théophile Lefebvre, &c., 4^{ème} partie, Zoologie (8vo, and folio Atlas, 1845–50), pp. 87, 88.

Three species here entered I entirely fail to determine; and Von Heuglin also appears to consider them hopelessly unrecognizable. They are:—

No. 139. *Cinnyris gularis*. It cannot, I think, be *C. gularis*, Rüpp.; for it is stated to be smaller than *C. affinis*.

No. 194, *Certhia chalybea*, and No. 205, *Cinnyris croceus*, I cannot refer to any Abyssinian species; so I can only believe that they are either incorrectly named or that South-African specimens have been inserted in the collection.

1845. JERDON, T. C. Supplement to the Catalogue of Birds of the Peninsula of India. Madras Journal, 1845, vol. xiii, p. 172.

Cinnyris longirostris, sp. n., from Mysore, = *Arachnothera longirostra* (Lath. 1790).

1845. RÜPPELL, EDWARD. Systematische Uebersicht der Vögel Nordost-Afrika's (8vo, Frankfurt am Main, 1845), pp. 26–28, pl. 9.

Nectarinia cruentata, sp. n., is figured, = *Cinnyris cruentatus* of this work.

1846. BLYTH, E. On new or little-known Species of Birds. J. A. S. B. vol. xv, p. 43.

1846. BLYTH, E. Notes on the Fauna of the Nicobar Islands. J. A. S. B. vol. xv (1846), p. 370.

Cinnyris pectoralis is here first recorded from these islands.

1846. GRAY, G. R. Catalogue of the Specimens and Drawings of Mammalia and Birds of Nepal and Thibet presented by B. H. Hodgson, Esq., to the British Museum (1846), p. 59.

1846. MÜLLER, SALOMON, and SCHLEGEL, H. Verhandelingen over de Natuurlijke Geschiedenis der Nederlandsche overzeesche bezittingen, door de Leden der Natuurkundige Commissie in Indië en andere Schrijvers—Zoologie (folio, Leiden, 1839–1844), pp. 53–68, pls. 8–11.

The following new species are here described:—

Arachnothera robusta, sp. n., from Sumatra, = *Arachnoraphis robusta* of this work.

Arachnothera armata, sp. n., from Sumatra and Java, = *Arachnoraphis robusta* (Müll. & Schl.).

The illustrations are good, and comprise the following important figures:—

Plate 8, fig. 1. *Nectarinia frenata*, Müll.

„ fig. 2. *N. temminckii*, Müll.

„ fig. 3. *N. hypogrammica*, Müll.

„ fig. 4. *N. simplex*, Müll.

Plate 9, fig. 1, ♀. Nest and egg of *Nectarinia mystacalis*, Temm.

„ fig. 2, ♀. Nest and egg of *N. pectoralis*, Temm., = *Chalcostetha insignis* (Jard.).

Plate 11, fig. 1. *Arachnothera robusta*, sp. n.

„ fig. 2. *A. armata*, sp. n. (*vide antea*).

1847. BLYTH, EDWARD. Critical Remarks upon Mr. J. E. Gray's published Catalogue of the Specimens of Mammalia and Birds presented by B. H. Hodgson, Esq., to the British Museum. *Ann. & Mag. Nat. Hist.* vol. xx, p. 316.

1847. BLYTH, EDWARD. Notices and Descriptions of various new and little-known Species of Birds. *J. A. S. B.* vol. xvi (1847), p. 472.

1847. GRAY, G. R., and MITCHELL, D. G. Genera of Birds (small folio, 1847), vol. i, pp. 97–99.

The family of Sun-birds, as I have restricted it, is here treated of as a portion of the sub-family Promeropinæ, of which the following genera are recognized—*Drepanis*, *Moho*, *Promerops*, *Nectarinia*, *Arachnothera*, and *Dicaeum*.

One hundred species are placed in the genus *Nectarinia*, and nine in *Arachnothera*. Of these the following three are probably fictitious:—8, *N. pusilla*, Vieill.; 27, *N. cardinalis*, Vieill.; 31, *N. ænea*, Vieill.,—all founded on Levaillant's figures.

The following nine do not belong to our family:—39, *N. melanura*; 43, *N. olivacea*; 46, *N. eques*; 74, *N. frontalis*; 80, *N. erythrorhynchos*; 83, *N. amboinensis*; 85, *N. parietum*; 100, *N. melasoma*; and 9, *Arachnothera novæ-guinææ*.

Three I fail to determine:—82, *N. manillensis* (ex *Certhia manillensis*, Gm. 1788); 90, *N. indica* (ex *Certhia indica*, Gm. 1788); 93, *N. nigrescens*, Vieill. 1823.

One species is new, and figured, pl. 35: but no description is given.

Arachnothera uropygialis, sp. n., = *Arachnoraphis robusta* (Müll. & Schl. 1846).

1847. SHAW, GEORGE, and NODDER, E. Naturalist's Miscellany, vol. xx (1847?), pls. 837, 865.

Plate 837. *Certhia erythrogastra*, sp. n., = *Cinnyris afer* (Linn. 1766).

1848. ALLEN, Captain WILLIAM, and THOMSON, T. R. H. A Narrative of the Expedition sent by Her Majesty's Government to the River Niger in 1841, under the command of Captain H. D. Trotter, R.N. 2 vols. 8vo.

Some remarks upon Sun-birds are to be found in vol. i, p. 250; vol. ii, pp. 221, 222; App. pp. 501–503.

1848. FERRET et GALINIER. Voyage en Abyssinie (8vo, and folio Atlas, Paris, 1847–48), vol. iii, p. 248.

1848. LOW, HUGH. *Sarawak; its Inhabitants and Productions, being Notes during a Residence in that Country with H.H. The Rajah Brooke* (London, 8vo, 1848), p. 410.

The author gives a simple list of the birds known to him from the above locality.

1849. SMITH, ANDREW. *Illustrations of the Zoology of South Africa* (4to, London), vol. ii, Aves, pl. 57.

Cinnyris verreauxi is here figured; and at the end of the article accompanying this plate *Cinnyris olivaceus*, sp. n., from Port Natal, is described.

1850. BIANCONI, J. JOSEPHI, *Specimina Zoologica Mosambicana, quibus vel novæ vel minus notæ animalium species illustrantur* (4to, Bononiæ), fasciculus iii, pp. 32–34.

Cinnyris discolor?, Vieill., apud Bianconi, = *C. gutturalis* (Linn. 1766).

1850. BONAPARTE, C. L. *Conspectus Generum Avium* (8vo, Lugduni Batavorum, 1850), pp. 404–410.

The family Promeropidæ is here divided into two subfamilies.

The first, Nectariniinæ, contains the following genera—*Pachyglossa*, *Myzanthæ*, *Dicæum*, *Drepanis*, *Hemignathus*, *Nectarinia*, *Cinnyris*, *Anthreptes*, and *Arachnothera*.

The second subfamily, Promeropinæ, only contains *Promerops*.

His *Nectarinia* comprises the following genera recognized by me—*Hedydipna*, *Nectarinia*, *Anthobaphes*, and *Æthopyga*; and he includes in it *Cinnyris adelberti*.

His *Cinnyris* comprises *Chalcostetha* and *Cinnyris* of this work, as well as *Hedydipna metallica*, *Anthreptes collaris*, *A. rectirostris*, *A. simplex*, and *A. phænicotis*.

His *Anthreptes* includes *Cinnyricinclus melasoma*, Less., which does not belong to our family.

His *Arachnothera* comprises *Arachnothera* and *Arachnoraphis*, and includes *Cinnyris novæguineæ*, Less., which I do not refer to this family.

Page 408. *Chalcostetha macklotii* (ex *Nectarinia pectoralis*, Temm.) = *Chalcostetha insignis* (Jard. 1842).

1850. CABANIS, DR. J. *Museum Heineanum* (8vo), vol. i, pp. 100–106.

The author here divides the family Nectariniidæ in the following manner:—

Subfamily Nectariniinæ.

Anthodiæta, gen. n. Type *A. collaris* (Vieill.)

Hedydipna, gen. n. Type *H. metallica* (Licht.).

Platydympna, gen. n. Type *P. platyura*, nom. emend. pro *P. platura* (Vieill.).

Paneola, gen. n. Type *P. pulchella* (Linn.).

Cinnyris, Cuv.

Nectarinia, Ill.

Subfamily Ptiloturinae, Cab.

Æthopyga, gen. n. Type *Æ. siparaja* (Raffles).

In a footnote he describes *Æ. eupogon*, sp. n., from Malacca, = *Æ. siparaja* (Raffles, 1820).

Anthobaphes, gen. n. Type *A. violacea* (Linn.).

Ptiloturus, Swains., = *Promerops*, Briss.

Subfamily Arachnotherinæ, Cab.

Anthothreptes, nom. emend. pro *Anthreptes*, Swains.

Leptocoma, gen. n. Type *L. hasseltii* (Temm.).

Cyrtostomus, gen. n. Type *C. jugularis* (Linn.).

Arachnechthra, gen. n. Type *A. lotenia* (Linn.).

Arachnothera, Temm.

1850. GOULD, J. On new Species of Birds from Australia. P. Z. S. 1850, p. 201.

Nectarinia australis, sp. n., = *Cinnyris frenatus* (S. Müll. 1843).

1850. HAIN, Dr. C. W., and KÜSTER, Dr. H. C. Vögel aus Asien, Afrika, America, und Neuhollland, herausgegeben in Abbildungen nach der Natur mit Beschreibungen (4to, Nürnberg, 1850), part 16, pl. 3.

Cinnyris chalybeus is figured. This reference I incorrectly entered under the date of 1829.

1850. STRICKLAND, H. E. List of Birds procured in Kordofan by J. Petherick. P. Z. S. 1850, p. 216.

1851. GOULD, JOHN. Birds of Australia. Supplement (folio, London), pl. 45.

Nectarinia australis (= *Cinnyris frenatus*, S. Müll.) is figured.

1851. JARDINE, Sir WILLIAM, and FRASER, L. Birds of Western Africa. Contributions to Ornithology (1851), pp. 151–155.

Nectarinia hypodila, sp. n., from Fernando Po, = *Anthreptes hypodila* of this work.

N. cyanolæma, sp. n., from Fernando Po, = *Cinnyris cyanolæmus* of this work.

N. tephrolæma, sp. n., from Fernando Po, = *Anthreptes tephrolæma* of this work.

1851. STRICKLAND, H. E. Birds from the River Gaboon, in West Africa. Contributions to Ornithology (1851), pp. 133, 134.

1851. VERREAUX, JULES et ÉDOUARD. Descriptions d'espèces nouvelles, rares ou peu connues, d'oiseaux du Gabon (Afrique occidentale). Revue et Magasin de Zoologie (1851), pp. 313–316, 417.

Page 314. *Cinnyris johannæ*, sp. n., from West Africa.

„ 417. *Anthreptes aurantium*, sp. n., from West Africa, = *Anthreptes aurantia* of this work.

1852. JARDINE, Sir WILLIAM, and FRASER, L. Birds of Western Africa. Contributions to Ornithology (1852), p. 59.

Nectarinia fasciata, sp. n., from the Niger district, = *Cinnyris johannæ*, Verr. 1851.

1852. STRICKLAND, H. E. Ornithological Notes. Contributions to Ornithology (1852), pp. 42, 43.

Nectarinia albiventris, sp. n., from Somali Land, = *Cinnyris albiventris* of this work.

1853. BREHM, ALFRED EDMUND. Etwas über den Zug der Vögel in Nordost-Afrika. J. f. O. 1853, p. 456. *

1853. LAYARD, EDGAR LEOPOLD. Notes on the Ornithology of Ceylon, collected during an eight years' residence in the Island. Ann. & Mag. Nat. Hist. vol. xii, 2nd series, pp. 174, 175. Notes on the habits of the Sun-birds as observed by the author.

1853. PUCHERAN, Dr. Études sur les Types peu connus du Musée de Paris. Neuvième article —Passereaux tenuirostres. Rev. et Mag. Zool. 2^e serie, vol. v (1853), pp. 484-488.

The author here makes the following determinations:—

Cinnyris leucogaster, Vieill., and *Cinnyris thoracicus*, Less., are the same.

C. sola, Vieill., = *Certhia zeylonica*, Linn.

He was unable to find the types of *C. cinireicollis*, Vieill., and *C. subflavus*, Vieill.

C. lucidus, Less., = *Certhia splendida*, Shaw.

C. sanguineus, Less., = *Certhia superba*, Shaw.

C. ruber, Less., = *Nectarinia hasseltii*, Temm.

C. solaris, Less., = *Certhia zeylonica*, Linn.

C. luteoenter, Less., = *Nectarinia pectoralis*, Horsf.

1854. BONAPARTE, CHARLES, Prince. Zoologie. Notes sur les Collections rapportées in 1853, par M. A. Delattre de son Voyage en Californie et dans le Nicaragua. Comptes Rendus des Séances de l'Académie des Sciences, vol. xxxviii, pp. 260, 261, 265.

The author here treats of the classification of the Honey-suckers.

Page 265. *Nectarinia formosæ* nom. emend. pro *N. famosa* (Linn.); Sundevall (*vide infra*) proves that the change is not necessary, *famosa* being perfectly good Latin.

Mangusia, gen. n. Types *Certhia rectirostris*, Shaw, and *Anthreptes fraseri*, Jard. & Selby (= *Anthreptes*).

Adelinus, gen. n. Type *Cinnyris verreauxi*, Smith. Not separable from *Cinnyris* as a genus.

1854. HARTLAUB, Dr. G. Versuch einer synoptischen Ornithologie Westafrika's. J. f. O. 1854, pp. 9-14.

This paper is the forerunner of the author's 'System der Ornithologie Westafrika's,' published three years later (1857).

1854. LICHTENSTEIN, II. Nomenclator Avium Musci Zoologici Berolinensis (8vo, Berlin, 1854), pp. 55, 56.

The following fresh titles are employed; but as there are no descriptions, it is only by examination of the actual specimens that they can be positively identified. They are

Arachnothera liturata, *Nectarinia cormorensis*, *N. saginata*, *Anthreptes equicauda*, *A. expectatus*.

I have not been able to examine the types; and although I have little doubt that the names are of no real importance, it would be interesting to see them definitely determined.

1854. REICHENBACH, Dr. L. Handbuch der speciellen Ornithologie—Scansoriæ (8vo, Dresden, 1854), pp. 277–316, pls. 567–594.

The author here gives a synopsis of the family; and most of the species are illustrated by copies of figures from the works of former writers. He divides the family into twenty-nine genera, containing one hundred and seven species. Of these the following two genera and six species do not belong to our family:—*Cosmeteira*, type *C. eques*; and *Hemignathus* containing *H. obscurus*, *H. olivaceus*, and *H. lucidus*. The other two species are *Cyrtostomus viridis*, sp. n., from America, and *Arachnoraphis novæ-guinææ*. His new genera are:—

Chalcomitra, gen. n. Type *Cinnyris amethystinus* (Shaw).

Nectarophila, gen. n., which he proposes should replace *Leptocoma*, Cab., on account of the latter name having previously been employed in botany. Type *Cinnyris hasselti* (Temm.).

Chromatophora, gen. n. Type *Cinnyris superbus* (Shaw).

Aidemonia (lege *Ædemonia*), gen. n. Type *Cinnyris cupreus* (Shaw). In this he also includes *Nectarinia tacaze* (Stanley).

Angaladiana, gen. n. Type *Certhia angaladiana*, Shaw, = *Cinnyris notatus* (P. L. S. Müll.).

Cyanomitra, gen. n. Type *Cinnyris verticalis* (Lath.) ♂.

Leucochloridia, gen. n. Type *Cinnyris verticalis* (Lath.) ♀.

Elacertia, gen. n., = *Adelinus*, Bp. 1854. Both have the same type, *Cinnyris verreauxi*, Smith.

Carmelita, gen. n. Type *Cinnyris fuliginosus* (Shaw).

Euchloridia, gen. n. Type *Anthreptes rectirostris* (Shaw).

Arachnoraphis, gen. n. Type *Arachnoraphis flavigastra* (Eyton).

Hypogramma, gen. n. Type *Anthreptes hypogrammica* (S. Müll.).

Arachnocestra, gen. n. Type *Arachnoraphis crassirostris* (Reichb.).

The following four new specific titles are given:—

Anthodiata subcollaris, sp. n., from W. Africa, = *Anthreptes hypodila* (Jard. 1851).

Aithopyga chalcopogon, sp. n., from Borneo, = *Æthopyga siparaja* (Raffles, 1820).

Arachnocestra crassirostris, sp. n., hab.?, = *Arachnoraphis crassirostris* of this work.

Arachnothera latirostris, sp. n., = *Arachnoraphis flavigastra* (Eyton, 1839).

1854. TYTLER, Captain ROBERT C. Observations on the Fauna of Barrackpore. Ann. and Mag. Nat. Hist. 2nd series, vol. xiii, p. 373.
1855. BLYTH, E. Report on a Zoological Collection made by Lieut. Speke from the Somali country. J. A. S. B. vol. xxiv (1855), p. 303.
1855. BLYTH, E. Report. J. A. S. B. vol. xxiv (1855), p. 478.
Arachnothera aurata, sp. n., from Pegu.
1855. HARTLAUB, Dr. G. Systematisches Verzeichniss der von Herrn H. S. Pel auf der Goldküste zwischen Cap Tres Punctas und Accrah gesammelten Vögel. J. f. O. 1855, p. 360.
1855. HODGSON, B. H. Catalogue of Nipalese Birds collected between 1824 and 1844. J. A. S. B. vol. xxiv (1855), p. 575.

1855. MOTLEY, JAMES, and DILLWYN, LEWIS LLEWELLYN. Contributions to the Natural History of Labuan and the adjacent Coasts of Borneo (8vo, London, 1855), pp. 15-17.
1855. MÜLLER, Dr. J. W. Systematisches Verzeichniss der Vögel Afrika's. J. f. O. 1855, pp. 13-16, 193.
This includes a list of the African Sun-birds, compiled from the works of other authors.
1855. VERREAUX, JULES, and VERREAUX, ÉDOUARD. Observations sur les mœurs des Oiseaux de l'Afrique méridionale et occidentale. Revue et Mag. 2^e série, vol. vii (1855), p. 511.
1856. BONAPARTE, Prince L. C. Zoologie. Espèces Nouvelles d'Oiseaux d'Asie et d'Amérique, et tableaux paralléliques des Pélagiens ou Gavia. Comptes Rendus des Séances de l'Académie des Sciences, xlii (1856), p. 765.
Cinnyris osea, sp. n., from Jericho.
1856. GOULD, JOHN. The Birds of Asia (folio, London, part viii, 1856), pls. 3, 4.
Nectarinia asiatica and *N. lotenia* are figured.
1856. HEUGLIN, Dr. T. VON. Systematische Uebersicht der Vögel Nordost-Afrika's (8vo, 1856), p. 20.
Nectarinia erythrocerca (misprint for *erythroceria*), sp. n., from the White Nile, = *Cinnyris erythrocerius* of this work.
N. porphyrocephala, sp. n., = *Cinnyris cupreus* (Shaw, 1811).
1856. HORSFIELD, THOMAS, and MOORE, FREDERIC. Catalogue of the Birds in the Museum of the Hon. East India Company (8vo, vol. ii, 1856), pp. 727-747.
Arachnothera temmincki, sp. n., from Sumatra, = *Arachnoraphis crassirostris* (Reichenb. 1854).
1857. HARTLAUB, Dr. G. System der Ornithologie Westafrika's (8vo, Bremen), pp. 43-54, 270, 271.
The author recognizes thirty-three species of Sun-birds as found in West Africa.
No. 124. *Nectarinia amethystina* (Shaw). The locality Senegal, *vide* Swainson, for this species is incorrect.
No. 129. *N. erythrothorax* (Vicill.). He searched in vain for the type in the Paris Museum.
No. 131. *N. bifasciata* (Shaw). The type of this species was collected by Perrein at Malimba; so it should only be applied to the West-African bird; and
No. 133. *N. jardinei*, Verr., sp. n., should be added as a synonym.
No. 134. *N. perreini* (Vieill.). The author informs us that the type no longer exists in the Paris Museum.
No. 142. *N. reichenbachii*, sp. n., from Gaboon, = *Cinnyris reichenbachii* of this work.
No. 143. *N. hartlaubi*, Verr., sp. n., from Angola, = *Cinnyris hartlaubi* of this work.
No. 146. *N. fusca* (Vieill.) is here recorded from Angola on the authority of a specimen in the Paris Museum.
1857. HEUGLIN, THEODOR VON. Reisen in Nordost-Afrika (8vo, Gotha, 1857), p. 78.

1857. MOORE, FREDERIC. Notes on the Habits of some Birds observed in the plains of N.W. India in 1849, by the Rev. T. Philipps, Baptist Missionary. P. Z. S. 1857, pp. 101, 102.
1857. SCHLEGEL, H. Handleiding tot de beoefening der Dierkunde (8vo, te Breda), pp. 236, 237.
1857. SCLATER, P. L. On the Zoology of New Guinea (read December 17, 1857). Proc. Linn. Soc. Zool. vol. ii (1858), p. 157.
1857. SUNDEVALL, CARL J. Kritisk Framställing af Fogelarterna uti äldre ornithologiska arbeten. Kongliga svenska Vetenskaps-Akademiciens Handlingar (4to), 1857, pp. 13, 56-58.
1. Museum Carlsonianum:—
 Page 13, no. 78. *Certhia ænea*, Sparrm., = *Trochilus holosericus*, Linn.
 Page 13, no. 79. *C. gularis*, Sparrm., = *C. jugularis*, Linn.
2. Le Vaillant, Oiseaux d'Afrique:—
 Page 56, no. 291. The type specimen of the *Sucrier cardinalin* is a made-up bird, composed of *Cinnyris chalybeus* (Linn.) with a red breast inserted.
 Page 57, no. 297. *Sucrier bronzé*. The male is here referred to *Cinnyris lotenius* (Linn.), and the female to *C. zenobia*, Less.
 P. 57, no. 298. *Sucrien*. The male is a made-up bird, principally of *Cinnyris zeylonicus* (Linn.). The female may be *C. zeylonicus* ♀.
1858. GRAY, G. R. A List of the Birds, with Descriptions of the new Species, obtained by Mr. Alfred R. Wallace in the Aru and Ké Islands. P. Z. S. 1858, pp. 173, 190.
 Page 190. The *Nectarinia zenobia* (Less.) of this list = *Cinnyris frenatus* ♀ (S. Müll.).
1858. GRILL, J. W. Zoologiska Anteckningar under en resa i södra delarne af Caplandet åren 1853-55. K. Vet. Akad. Handl. Stockholm (4to), 1858, pp. 38, 39.
1858. MOORE, T. J., and F. Notes on the Habits, Haunts, &c. of some of the Birds of India. By A. Leith Adams, M.B., Surgeon 22nd Regiment. P. Z. S. 1858, pp. 496, 497.
1859. BERNSTEIN, Dr. H. A. Ueber Nester und Eier einiger javanischer Vögel. J. f. O. 1859, pp. 279-281.
 The nests and eggs of *Cinnyris pectoralis* (Horsf.), *C. aspasix*, Less., and *Arachnothera longirostris* (Lath.) are described.
1859. CASSIN, JOHN. Catalogue of Birds collected on the Rivers Camma and Ogobai, Western Africa, by P. B. DuChaillu in 1858, with Notes and Descriptions of new Species. Proc. Acad. Philad. 1859, pp. 35-37.
1859. GOULD, J. List of Birds collected at Tavoy, in the Tenasserim Province, by Captain Briggs. P. Z. S. 1859, p. 150.
1859. GOULD, J. List of Birds collected in Siam by Sir Robert H. Schomburgk. P. Z. S. 1859, p. 151.

1859. GRAY, G. R. List of Birds lately sent by Mr. A. R. Wallace from Dorey or Dorery, New Guinea. P. Z. S. 1859, p. 155.

Nectarinia zenobia (Lcass.)=*Cinnyris frenatus* (S. Müll.) ♀.

1859. GRAY, JOHN EDWARD and GEORGE ROBERT. Catalogue of the Mammalia and Birds of New Guinea in the collection of the British Museum (8vo), pp. 22, 55.

The locality New Guinea, on the authority of Lesson, for *Cinnyris zenobia* is incorrect.

1859. HARTLAUB, Dr. G. Zur Fortpflanzungsgeschichte der Vögel Indiens. J. f. O. 1859, pp. 292, 293.

1859. HEUGLIN, THEODOR VON. List of Birds observed and collected during a Voyage in the Red Sea. Ibis, 1859, p. 340.

1859. MOORE, FREDERIC. List of Malayan Birds collected by Theodore Cantor, Esq., M.D., with Descriptions of imperfectly known Species. P. Z. S. 1859, pp. 460-463.

1860. GRAY, G. R. List of Birds collected by Mr. Wallace at the Molucca Islands, with Descriptions of New Species &c. P. Z. S. 1860, p. 348.

The following localities are incorrect:—*C. solaris* from Amboyna, and *C. zenobia* from Gilolo.

1860. GURNEY, JOHN HENRY. On Birds collected in the Colony of Natal, in South-eastern Africa. Ibis, 1860, pp. 207, 208.

1860. HARTLAUB, Dr. G., and MONTEIRO, J. J. On some Birds collected in Angola. P. Z. S. 1860, p. 110.

Nectarinia cyanolæma, Jard., and *N. chlorolæma* (lege *tephrolæma*, Jard. & Fraser) are recorded from Angola for the first time.

1860. HARTLAUB, Dr. G. Systematische Uebersicht der Vögel Madagascar's. J. f. O. 1860, pp. 89, 90.

This paper is the precursor of the more complete work on the avifauna of Madagascar published by the author in 1862 (*vide infra*).

1860. HARTLAUB, Dr. G. Drei neue africanische Vögel der Pariser Sammlung. J. f. O. 1860, p. 340.

Nectarinia dussumieri, sp. n., from the Seychelles Islands,=*Cinnyris dussumieri* of this work.

1860. HEINE, FERD. Catalogue of Birds collected on the rivers Camma and Ogobai, West Africa, by Mr. P. B. DuChaillu in 1858, with Notes and Descriptions of New Species, by JOHN CASSIN. Translated in J. f. O. 1860, pp. 136-138.

Page 137. *Tephrolæma*, gen. n. Type *Anthreptes tephrolæma* (Jard. & Fraser).

1860. SPEKE, Captain J. H. On Birds collected in the Somali Country, Eastern Africa. Ibis, 1860, p. 247.

1861. GRAY, G. R. Remarks on, and Descriptions of, New Species of Birds lately sent by Mr. A. R. Wallace from Waigiou, Mysol, and Gagie Islands. P. Z. S. 1861, p. 433.
1861. HARTLAUB, Dr. G. Ornithologischer Beitrag zur Fauna Madagascar's. Mit Berücksichtigung der Inseln Mayotta, Nossi-Bé und St. Marie, sowie der Mascarenen und Seychellen (8vo, Bremen, 1861), pp. 34, 35.
Nectarinia seychellensis, sp. n., from Seychelles, = *Cinnyris dussumieri* (Hartl. 1860).
1861. HARTLAUB, Dr. G. Ueber einige neue Vögel Westafrika's. J. f. O. 1861, p. 13.
Nectarinia gabonica, sp. n., from Gaboon. I consider this to be the female of *Anthreptes tephrolæma*, Jard. & Fraser.
1861. HARTLAUB, Dr. G. Berichtigungen und Zusätze zu meinem 'System der Ornithologie Westafrika's.' J. f. O. 1861, pp. 108-110.
Nectarinia phæothorax, sp. n., from Ashantee, = *Anthreptes rectirostris* (Shaw, 1811).
1861. HEUGLIN, TH. VON. Ueber einige ornithologische Sammlungen vom rothen Meer und der abyssinischen Küste bis Tigreh. J. f. O. 1861, p. 194.
1861. HEUGLIN, TH. VON. Fauna des rothen Meeres, in Petermann's 'Mittheilungen,' 1861, p. 21.
1862. GURNEY, JOHN HENRY. A Fourth additional List of Birds received from Natal. Ibis, 1862, p. 155.
1862. JERDON, T. C. The Birds of India (8vo, Calcutta, 1862-64), vol. i, pp. 359-373.
1862. MONTEIRO, J. J. Notes on Birds collected in Angola in 1861. Ibis, 1862, pp. 337-341.
Nectarinia chalcea, Hartl., sp. n., = *Cinnyris cupreus* (Shaw, 1811).
1862. ROCH, S., and NEWTON, E. Notes on Birds observed in Madagascar. Ibis, 1862, p. 272.
1862. WALLACE, ALFRED RUSSEL. List of Birds from the Sula Islands (east of Celebes), with Descriptions of the new Species. P. Z. S. 1862, pp. 335, 342, 343.
1863. BREHM, Dr. A. E. Ergebnisse einer Reise nach Habesch (8vo, Hamburg, 1863), p. 211.
N. famosa, Linn., apud Brehm, = *N. cupreonitens*, Shelley, 1876.
1863. NEWTON, E. Notes of a Second Visit to Madagascar. Ibis, 1863, p. 342.
The nest of *Cinnyris souimanga* is described.
1863. SCLATER, P. L. On the Mammals and Birds collected in Madagascar by Dr. Charles Meller. P. Z. S. 1863, p. 162.
1863. SCLATER, P. L. Observations on the Birds of South-eastern Borneo, by the late JAMES MOTLEY, Esq., of Banjermassing; with notes. P. Z. S. 1863, p. 220.

1863. WALLACE, ALFRED RUSSEL. List of Birds collected in the Island of Bouru (one of the Moluccas), with Descriptions of New Species. P. Z. S. 1863, p. 32.
Nectarinia proserpina, sp. n., = *Cinnyris proserpinæ* of this work.
1863. WALLACE, ALFRED RUSSEL. A List of the Birds inhabiting the Islands of Timor, Flores, and Lombock, with Descriptions of new Species. P. Z. S. 1863, p. 486.
1864. ANTINORI, ORAZIO. Catalogo descrittivo di una Collezione di Uccelli fatta da Orazio Antinori nell' interno dell' Affrica Centrale dal maggio 1859 al luglio 1861 (8vo, Milano), pp. 33-37.
 Page 33. *Nectarinia natalensis*, Jard. apud Ant., = *Cinnyris acik* (Antin. 1866).
 Page 35. *Nectarinia gonzenbachii*, sp. n., from White Nile, = *Cinnyris erythrocerius* (Heugl. 1858).
1864. BEAVAN, Lieut. R. C. On Indian Birds' Eggs. P. Z. S. 1864, p. 375.
1864. CASSIN, JOHN. Fasti Ornithologici. Proc. Acad. Philad. 1864, p. 244.
 This is a review of P. L. S. Müller's Supplement to his edition of Linnæus's 'Systema Naturæ.'
1864. GURNEY, J. H. A Sixth additional List of Birds from Natal. Ibis, 1864, pp. 347, 348, 358.
1864. HEUGLIN, Dr. TH. VON. Ornithologische Miscellen aus Central-Africa. J. f. O. 1864, pp. 261-263.
 This paper is a forerunner of the author's large work 'Ornithologie Nordost-Africa's.'
1864. KIRK, Dr. JOHN. On the Birds of the Zambesi Region of Eastern Tropical Africa. Ibis, 1864, p. 320.
Nectariniu amethystina (Shaw), apud Kirk, = *Cinnyris kirkii*, Shelley, 1876.
N. collaris (Vicill.), apud Kirk, = *Anthreptes zambesiana* (Shelley, 1876).
 The two species I described in 1876 were collected by Dr. Kirk in this region.
1864. PETERS, W. Ueber eine neue *Cinnyris*-Art von den Comoren. J. f. O. 1864, May, p. 161.
Cinnyris comorensis, sp. n., from Anjuan Island.
1864. ROSENBERG, G. VON. Beitrag zur Ornithologie von Neu-Guinea. J. f. O. 1864, p. 123.
 The localities for the Sun-birds are by no means correct.
1864. SCHOMBURGK, Sir ROBERT H. Cursory Notes on some of the Birds of Siam. Ibis, 1864, p. 248.
 Under the heading of *Anthreptes lepida* there is the description of a bird which is quite incomprehensible to me.
1864. SCLATER, P. L. On the Birds of the Comoro Islands. Ibis, 1864, p. 299.

1864. SWINHOE, ROBERT. Letter from. *Ibis*, 1864, p. 416.
1864. TRISTRAM, Rev. H. B. Report on the Birds of Palestine. *P. Z. S.* 1864, p. 445.
Letter from. *Ibis*, 1864, p. 230.
1865. BEAVAN, Captain R. C. Notes on various Indian Birds. *Ibis*, 1865, pp. 414-416.
1865. FINSCH, OTTO. Neu-Guinea und seine Bewohner (8vo, Bremen), p. 63.
A list of Papuan Sun-birds is given; and the localities are more correctly stated than in any previous list.
1865. GOULD, JOHN. Handbook to the Birds of Australia (8vo), vol. i, pp. 583, 586.
He recognizes the identity of his *Nectarinia australis* with *N. frenata*, Müll.
1865. GOULD, J. Description of four new Species of Birds from Eastern Asia. *P. Z. S.* 1865, pp. 663, 664.
Nectarinia (Arachnechthra) insignis, sp. n., from Penang, = *Chalcostetha insignis* (Jard. 1842).
1865. MONTEIRO, J. J. Notes on Birds collected in Benguela. *P. Z. S.* 1865, p. 96.
1865. NEWTON, A. A List of Animals collected at Mohambo, Madagascar, by Mr. W. T. Gerrard. *P. Z. S.* 1865, p. 834.
1865. PEIZELN, A. VON. Reise der österreichischen Fregatte 'Novara.'—Vögel (4to, Wien, 1865), pp. 51-53.
1865. RAMSAY, EDWARD P. List of Birds received from Port Denison, Queensland. *Ibis*, 1865, pp. 85, 86.
1865. SALVADORI, Count. Letter from. *Ibis*, 1865, pp. 548, 549.
Ethopyga lodoisia, sp. n., hab.?, = *Æ. mystacalis* (Temm. 1823).
1865. TRISTRAM, Rev. H. B. On the Ornithology of Palestine. *Ibis*, 1865, pp. 72-74, pl. 2.
The history of *Cinnyris osea*, Bp., is here given, with a plate of the male, female, and young.
1865. VINSON, A. Voyage à Madagascar au couronnement de "Radama II." Annexe B. Oiseaux, par J. Verreaux (8vo, Paris, 1865).
1865. WALLACE, ALFRED RUSSEL. Description of New Birds from the Malay Archipelago. *P. Z. S.* 1865, pp. 478, 479.
Nectarinia flavo-striata, sp. n., pl. 29, fig. 2, from Menado, in Celebes, = *Ethopyga flavo-striata* of this work.
N. porphyrolama, sp. n., from Macassar, in Celebes, = *Cinnyris porphyrolamus* of this work.
N. grayi, sp. n., from Menado, = *Cinnyris grayi* of this work.
1866. BLYTH, EDWARD. The Ornithology of India. A Commentary on Dr. Jerdon's 'Birds of India.' *Ibis*, 1866, p. 364.

1866. BOCAGE, J. V. BARBOZA DU. Aves das possessões portuguezas d'Africa occidental que existem no Museo de Lisboa. Jorn. Lisboa, part ii, 1866, pp. 135, 136.

1866. BULGER, Captain G. E. List of Birds observed at Wellington, Neilgherry Hills, about 6000 feet above the level of the sea, during the months of April and May 1866. P. Z. S. 1866, p. 569.

1866. DOHEN, Dr. H. Synopsis of the Birds of Ilho do Principe, with some Remarks on their Habits and Descriptions of New Species. P. Z. S. 1866, pp. 326, 331.

According to the author, the only two Sun-birds met with on the island are *Cinnyris hartlaubi* (Verr.) and *Anthreptes fraseri*; but the latter was wrongly determined, and should be *Cinnyris obscurus* (Jard.).

1866. HARTMANN, Dr. R. Orazio Antinori: Beschreibung und Verzeichniss einer von Mai 1859 bis Juli 1861 in Nord-Central-Afrika angelegten Vögelsammlung. Aus dem Italienischen auszugsweise übersetzt und mit einigen Anmerkungen versehen. J. f. O. 1866, pp. 205-208, 235-238.

Nectarinia acik, Antinori, sp. n., ex *N. natalensis*, Antinori, Cat. p. 34 (1864), = *Cinnyris acik* of this work.

1866. MARTENS, Dr. EDUARD v. Zusammenstellung der bekannten philippinischen Vögel. J. f. O. 1866, pp. 12, 13.

Only two true Sun-birds are here recognized from the Philippines; for *Nectarinia pygmaea*, Kittl., does not belong to the family.

1866. SCHLEGEL, Dr. H. On New Animals from Madagascar. P. Z. S. 1866, p. 421.

1866. SCLATER, P. L. Report on Birds collected at Windvogelberg, South Africa, by Captain G. E. Bulger, C.M.Z.S. P. Z. S. 1866, p. 22.

1866. WALDEN, ARTHUR, Viscount. Notes on Birds collected in Tenasserim and in the Andaman Islands. P. Z. S. 1866, pp. 540-544.

Arachnothera magna (Hodgs.), apud Walden, = *A. aurata*, Blyth.

Æthopyga miles (Hodgs.), apud Walden, = *Æ. cara*, Hume.

This communication contains many important notes upon nomenclature and distribution.

1867. BEAVAN, Captain R. C. The Avifauna of the Andaman Islands. Ibis, 1867, p. 322.

Cinnyris pectoralis is here recorded from the Andaman Islands. This being the only instance known of its capture on this group, I am led to the belief that it should be referred to *C. andamanicus*; for Mr. Davison (Str. F. 1874, p. 197) expresses as his opinion that *C. pectoralis* is not to be found on the Andaman Islands.

Arachnothera longirostra is said to have been seen, but not procured, in these islands; and as I know of no instance of its capture there, the evidence is not conclusive; and no mention is made of it by Mr. Hume in his article on the birds of the islands of the Bay of Bengal (Str. F. 1874); so I think that it should not be admitted into the avifauna of the Andaman Islands.

1867. BOCAGE, J. V. BARBOZA DU. Aves das possessões portuguezas d'Africa occidental que existem no Musco de Lisboa. Jorn. Lisboa, 1867, part iv, p. 332.
Nectarinia, sp., from Capangombe, = *Cinnyris leucogaster*, Vieill.
1867. FINSCH, OTTO. Ueber eine Vögelsammlung aus Natal. J. f. O. 1867, pp. 246, 247.
1867. GOULD, JOHN. The Birds of Asia (folio, London, 1867), part xix, pls. 3-7.
Nectarinia osca, *N. zeylonica*, *N. insignis*, *N. gouldiae*, and *N. saturata* are figured.
1867. GRANDIDIER, ALFRED. Notes sur les mammifères et les oiseaux observés à Madagascar de 1865 à 1867. Rev. et Mag. Zool. 2^e série, vol. xix, p. 355.
1867. HARTLAUB, DR. G. Report on a Collection of Birds formed in the Island of Zanzibar by Dr. John Kirk. P. Z. S. 1867, pp. 824, 825.
1867. HEUGLIN, TH. VON. Berichtigungen und Noten zu Antinori's Katalog der nordost-afrikanischen Vögel. J. f. O. 1867, p. 202.
1867. HEUGLIN, TH. VON. Ueber die ornithologischen Arbeiten der Herzogs Paul Wilhelm von Württemberg. J. f. O. 1867, p. 300.
 The author here makes the following determinations of the species named by Prince Paul von Württemberg:—
Cinnyris fulgens, Würt., = *Cinnyris cupreus* (Shaw).
Nectarinia souimanga, Würt., from Singué and Qamamil, is fully described, but no name given, = *Cinnyris fazoglensis*, Finsch, 1871.
1867. LAYARD, EDGAR LEOPOLD. The Birds of South Africa (8vo, Cape-town, 1867), pp. 75-83.
 A very useful work upon the birds of South Africa. Nineteen species are mentioned under the genus *Nectarinia*; but only eleven of these are good South-African species; the following eight are entered on the authority of older writers:—
 No. 128, *Nectarinia cinerea* (Vieill.), = *N. fumosa* (Linn.), immature.
 No. 133, *N. senegalensis* (Linn.), no. 138, *N. splendida* (Shaw), no. 139, *N. pulchella* (Linn.), and no. 140, *N. platura* (Vieill.) are West-African species.
 No. 135, *N. ænea* (Vieill.), no. 137, *N. cardinalis* (Vieill.), are fictitious birds, and no. 141, *N. melanura*, a New-Zealand *Anthornis*.
1867. MARTENS, DR. EDUARD V. Die preussische Expedition nach Ost-Asien (4to, Berlin, 1867), pp. 189, 368.
1867. NEWTON, EDWARD. On the Land-Birds of the Seychelles Archipelago. Ibis, 1867, pp. 336, 337.
1867. VERREAUX, JULES. Catalogue d'Oiseaux récoltés par Mgr. Perny, évêque du Su-tchuen, dans le nord de la Chine, et description de deux espèces nouvelles. Rev. et Mag. Zool. 2^e série, xix, pp. 173, 174.
Nectarinia dabryi, sp. n., from China, = *Æthopyga dabryi* of this work.

1868. BOCAGE, J. V. BARBOZA DU. Aves das possessões portuguezas d'Africa occidental que existem no Museu de Lisboa. *Jorn. Lisboa*, vol. v, p. 41.
Nectarinia ludovicensis, sp. n., from Benguela, = *Cinnyris afer* (Linn. 1766).
1868. CHAPMAN, JAMES. Travels in the Interior of South Africa (8vo, London, 1868), vol. ii, Appendix, p. 407.
1868. GURNEY, J. H. An Eighth additional List of Birds from Natal. *Ibis*, 1868, pp. 43, 44.
1868. GURNEY, J. H. Notes on Mr. Layard's 'Birds of South Africa.' *Ibis*, 1868, p. 270.
1868. LAYARD, E. L. Letter from. *Ibis*, 1868, pp. 243, 244.
 Chiefly refers to the nest and eggs of *C. afer* and *C. fuscus*.
1868. PELZELN, AUGUST VON. On the Species of Birds collected by Dr. Stoliczka in Thibet and the Himalayas. *Ibis*, 1868, p. 307.
1868. SCHLEGEL, H., and POLLEN, FRANÇOIS P. L. Recherches sur la Faune de Madagascar et de ses dépendances. Mammifères et Oiseaux. 2^{me} Partie (royal 8vo, Leyde, 1868), pp. 69–71.
 An important work on the fauna of Madagascar and the neighbouring islands. Three species of Sun-birds are recognized—*C. notatus*, *C. suimanga*, and *C. coquereli*; and the latter is well figured, pl. 8, fig. 1.
1868. SPERLING, Acting-Commander ROLAND M. Ornithological Notes from the Ethiopian Region. *Ibis*, 1868, p. 289.
1868. TRISTRAM, H. B. On the Ornithology of Palestine. Part viii. *Ibis*, 1868, p. 334.
1869. BEAVAN, R. C. Additional Notes on various Indian Birds. *Ibis*, 1869, pp. 418–421.
1869. BROOKS, W. E. Notes on Birds observed near Nynce Tal and Almorah, from April to June 1868. *Ibis*, 1869, p. 47.
1869. BULGER, G. E. List of Birds obtained in Sikkim, Eastern Himalayas, between March and July 1867. *Ibis*, 1869, p. 159.
1869. CABANIS, J. Baron Carl Claus von der Decken's Reisen in Ost-Afrika, vol. iii, Vögel (1869), pp. 28, 29.
 The following three species are recorded from Mombas and Zanzibar:—
Anthodiæta collaris (Vieill.), apud Cab., = *Anthreptes zambesiana* (Shelley, 1876).
Cinnyris gutturalis (Linn.).
C. jardinei (Verr.), apud Cab., = *C. microrhynchus*, Shelley (1876).
1869. FINSCH, OTTO. On a Collection of Birds from North-eastern Abyssinia and the Bogos Country. *Trans. Z. S.* vol. vii (1872), pp. 227–230. Read June 4th, 1869.
 Contains an account of Jesse's collection.
Nectarinia osiris, sp. n., from Bogos Land, = *Cinnyris osiris* of this work.

1869. GRAY, G. R. Hand-list of the Genera and Species of Birds vol. i (8vo, London, 1869), pp. 106–113.

The author here gives a complete list of the genera and species of Sun-birds up to date.

One new name is here given, no. 1390, *Arachnothera melanogastra*, n. sp., = *Cinnyris zenobia*, Less. 1826.

The total number of supposed species enumerated is one hundred and twenty-five; of these the following six belong to other families:—

1337. *Nectarinia eques*.

1338. *Promerops cafer*.

1363. *P. simplex*.

1371. *Arachnothera nova-guinea*.

1374. *A. vagans*.

1400. *A. melasoma*.

One, 1298, *Nectarinia aenea* = 0.

One cannot be determined, 1299, *Nectarinia perreini*.

Twenty-four are synonyms of other species; so that the actual number of Sun-birds known was ninety-three.

1869. HEUGLIN, TH. VON. Reise in das Gebiet des weissen Nil (8vo, Leipzig, 1869), p. 337.

1869. LAYARD, E. L. Further Notes on South-African Ornithology. Ibis, 1869, p. 365.

1869. SHARPE, R. B. On the Birds of Angola.—Part I. P. Z. S. 1869, p. 566.

1869. SHARPE, R. B. On a Collection of Birds from the Fantee Country, in Western Africa. Ibis, 1869, p. 188.

1869. SHARPE, R. B. On two more Collections of Birds from the Fantee Country. Ibis, 1869, p. 383.

Nectarinia angolensis is here entered by mistake; the specimens sent were *Cinnyris a.*

1869. SWINHOE, ROBERT. Descriptions of two new Species of Sun-birds from the Islands of Hainan, South China. Ann. & Mag. Nat. Hist. 4th series, vol. iv, p. 436.

Ethopyga christinae, sp. n., = *Urodrepanis christinae* of this work.

Arachnechthra rhizophoræ, sp. n., = *Cinnyris rhizophoræ* of this work.

1870. BLANFORD, W. T. On the Geology and Zoology of Abyssinia. Observations on the Geology and Zoology of Abyssinia made during the progress of the British Expedition to that country in 1867–68 (8vo, London, 1870), pp. 351–354.

Seven species are noticed; and personal notes on their habits are given.

Nectarinia jardinei, Verr. apud Blanf., = *Cinnyris osiris* (Finsch).

1870. BLANFORD, W. T. List of Birds obtained in the Irawadi Valley around Ava, Thayet Myo, and Bassein. Ibis, 1870, p. 467.

1870. BLYTH, EDWARD. Notes relating chiefly to the Birds of India. Ibis, 1870, p. 164.

1870. BOCAGE, J. V. BARBOZA DU. Aves das possessões portuguezas d'Africa occidental que existem no Museum de Lisboa. Jorn. Lisboa, part viii (1870), p. 340.

1870. FINSCH, Dr. O., and HARTLAUB, Dr. G. Die Vögel Ost-Afrika's. Von der Decken's Reisen in Ost-Afrika, Band iv (royal 8vo, Leipzig und Heidelberg), pp. 212-225, 861.

Like all the works of these authors, the Sun-birds of East Africa are here treated of with much care: in the present volume, however, I have found it necessary to separate some of the East-African forms as specifically distinct from their representatives in the other African regions. Thus:—

Nectarinia jardinei, apud F. & H., = *Cinnyris microrhynchus*, Shelley, 1876.

N. amethystinus, apud F. & H., = *C. kirkii*, Shelley, 1876.

N. collaris, apud F. & H., = *Anthreptes zambesiana* (Shelley, 1876).

N. jardinei, apud F. & H. (= *C. microrhynchus*, Shelley), and *N. erythroceria*, Heugl., are figured; the locality Mosambique given for the latter is extremely doubtful.

1870. GODWIN-AUSTEN, Major H. II. A List of Birds obtained in the Khasia and North Cachar Hills. J. A. S. B. vol. xxxix, p. 98.

1870. HUME, ALLAN. Letter from. Ibis, 1870, pp. 436, 437.

Arachnechthra intermedia, n. sp., described. This is a large race of *Cinnyris asiaticus* (Lath. 1790).

1870. SALVADORI, Count T. Rivista critica del Catalogo descrittivo di una collezione di uccelli fatta da Orazio Antinori nell' interno dell' Africa centrale nord, dal maggio 1859 al luglio 1861. Atti R. Accad. Sci. Torino, 1870, p. 731, pl. 1.

Nectarinia acik, Antin., is figured.

N. gonzenbachii, Antin., = *N. erythroceria*, Heugl.

1861.

.. R. BOWDLER. On the Birds of Angola.—Part II. P. Z. S. 1870, p. 142.

1869.

.. J. SHARPE, R. BOWDLER. Contributions to the Ornithology of Madagascar.—Part I. P. Z. S. 1870, p. 388.

1870. SHARPE, R. BOWDLER. On a Fourth Collection of Birds from the Fantee Country. Ibis, 1870, pp. 52, 53.

Nectarinia fantensis, sp. n., = *Anthreptes rectirostris* (Shaw, 1811).

1870. SHARPE, R. BOWDLER. On additional Collections of Birds from the Fantee Country. Ibis, 1870, pp. 477, 478.

1870. SWINHOE, ROBERT. On the Ornithology of Hainan. Ibis, 1870, pp. 236-239.

Contains nearly all we know respecting *Urorepanis christinae* and *Cinnyris rhizophoræ*.

1870. WALDEN, Viscount ARTHUR. On the Sun-birds of the Indian and Australian Regions. Ibis, 1870, pp. 18-51, pl. 1.

A very important paper, the details being carefully and, as a rule, accurately worked out; but there appears to have been no attempt at classification. He excludes *Arachnothera*.

The family is divided into six genera containing thirty-nine species.

1871. AYRES, T. Additional Notes on Birds of the Territory of the Transvaal Republic. Ibis, 1871, p. 150.

1871. BLANFORD, W. T. List of Birds collected or observed in the Wardha Valley and its vicinity near Chanda. J. A. S. B. vol. xl (1871), p. 272.

1871. HEUGLIN, TH. VON. Ornithologie Nordost-Afrika's (royal 8vo, Cassel), vol. i, pp. 221-235; vol. ii (Finsch, Dr. O., Beiträge), pp. lxxviii, lxx.

The author recognizes fifteen species belonging to this region, and carefully works out his subject.

No. 177. *Nectarinia jardinei*, Verr., apud Heugl., = *Cinnyris osiris* (Finsch).

No. 183. *Nectarinia*, sp., p. 233, = *Nectarinia fazoglensis*, Finsch, 1871, tom. cit. App. p. lxx. This title supersedes *Cinnyris heuglini*, Shelley, 1879.

1871. SALVADORI, Count T. Letter from. Ibis, 1871, p. 248.

1871. SHARPE, R. BOWDLER. Catalogue of African Birds in the Collection of R. B. Sharpe (8vo, London), pp. 36-41.

A useful work, on account of the localities being all well authenticated.

The family Nectariniidæ here contains four genera. Two of these, the first and the last (*Promerops* and *Pholidornis*), I do not consider to belong to this family; the other two are *Nectarinia* and *Anthreptes*. Under *Nectarinia* he includes forty-four species.

1871. SHARPE, R. BOWDLER. On the Birds of Angola.—Part III. P. Z. S. 1871, p. 133.

Nectarinia chloropygia, Jard., and *N. superba* (Shaw) are here recorded from Angola for the first time.

1871. SHARPE, R. BOWDLER. Contributions to the Ornithology of Madagascar.—Part II. P. Z. S. 1871, p. 317.

1871. SHARPE, R. BOWDLER. On the Birds of the Camaroons, Western Africa. P. Z. S. 1871, pp. 609, 610.

1871. SHELLEY, Captain G. E. Contributions to the Ornithology of Egypt. Ibis, 1871, pp. 135, 136.

1871. SWINHOE, ROBERT. Revised Catalogue of the Birds of China and its Islands, with Descriptions of New Species, References to former Notes, and occasional Remarks. P. Z. S. 1871, p. 349.

1871. WALDEN, ARTHUR, Viscount. A List of the Birds known to inhabit the Island of Celebes. Trans. Z. S. vol. viii (1874), pp. 70, 71. Read May 2nd, 1871.
1871. WALDEN, ARTHUR, Viscount. Observations on Dr. Stoliczka's "Contributions to Malayan Ornithology." Ibis, 1871, pp. 166, 167.
1872. ANDERSSON, CHARLES JOHN. Notes on the Birds of Damara Land and the adjacent Countries of South-west Africa; edited by John Henry Gurney (8vo, London), pp. 68-75.
1872. BALI, V. Notes on a Collection of Birds made in the Andaman Islands by Assistant-Surgeon G. E. Dobson, M.B., during the months of April and May. J. A. S. B. vol. xli, p. 280.
1872. GIEBEL, Dr. C. G. Thesaurus Ornithologiæ. 8vo, Leipzig. Commenced 1872.
This work contains a large amount of synonymy arranged in alphabetical order; but I do not find any original identifications.
1872. HOLDSWORTH, E. W. H. Catalogue of the Birds found in Ceylon; with some Remarks on their Habits and Local Distribution, and Descriptions of two New Species peculiar to the Island. P. Z. S. 1872, p. 434.
1872. JERDON, Dr. T. C. Supplementary Notes to 'The Birds of India.' Ibis, 1872, pp. 16-18.
1872. PELZELN, AUGUST V. Ueber eine Sendung von Vögeln von den Aru-Inseln und den Molukken. Verhandl. k. k. zool. Gesellsch. in Wien, vol. xxii (1872), p. 427.
1872. SHARPE, R. BOWDLER. On Recent Collections of Birds from the Fantee Country, in Western Africa. Ibis, 1872, pp. 69, 70.
Nectarinia tephrolama, Jard., apud Sharpe, = *Anthreptes rectirostris* (Shaw), as is proved by the specimen in the British Museum. It is an immature male, very similar to the centre figure of this bird in my Pl. 107.
N. gabonica, Hartl., apud Sharpe, I consider to be the female of *Anthreptes rectirostris* (Shaw); and as such I have figured it at Pl. 107, fig. 1, and described it on p. xlv.
1872. SHELLEY, Captain G. E. A Handbook to the Birds of Egypt (royal 8vo), pp. 112, 113.
Hedydipna metallica is figured, pl. 4.
1872. SHELLEY, Captain G. E., and BUCKLEY, T. E. 'Two Months' Bird-collecting on the Gold Coast. Ibis, 1872, p. 287.
1872. SUNDEVALL, CARL J. Methodi Avium disponendarum tentamen—Försök till Fågelklassens naturliga Uppställning (8vo. Stockholm), pp. 48, 49.
A very important work upon classification. The Sun-birds are here arranged in his Cohors 5, *Cinnyrimorphæ*, of which they form his family 3, Nectariniinæ. In this family the following genera and divisions are recognized:—

C. aspasia, var. *mysorensis*, sp. n., from Mysore, = *Cinnyris mysorensis* of this work.

C. aspasia, var. *jobiensis*, sp. n., from Jobi, = *Cinnyris jobiensis* of this work.

C. sangirensis, sp. n., from Sanghir, = *Cinnyris sangirensis* of this work.

1874. SALVADORI, Count TOMMASO. Catalogo systematico degli Uccelli di Borneo. Ann. Mus. Civ. Genova, vol. v, pp. 170-188.

This very important work upon the Birds of Borneo includes fourteen species of Sun-birds.

He proposes the title *Arachnothera eytonii* for *Arachnoraphis flavigastera* (Eyton) of this work, on account of the improper formation of the latter name.

Two species have since been added to the avifauna of this island by Mr. Sharpe. These are *Æthopyga temminckii* (S. Müll.; cf. Sharpe, Ibis, 1878, p. 419) and *Anthreptes rhodolama*, Shelley (cf. Sharpe, Ibis, 1879, p. 260).

1874. SALVADORI, Count TOMMASO. Nuove specie di uccelli delle isole Aru e Kei. Ann. Mus. Civ. Genova, vol. vi (1874), pp. 77, 78.

Chalcostetha chlorolama, sp. n. (nec Hartl.), from the Kei islands, = *Cinnyris theresæ* (Salvad. 1874).

Chalcostetha chlorocephala, sp. n., from the Aru islands, = *Cinnyris aspasia*, Less. 1826.

1874. SALVADORI, Count T. Altre nuove specie di uccelli della Nuova Guinea e di Goram, raccolte del Signor L. M. D'Albertis. Ann. Mus. Civ. Genova, vol. vi (1874), p. 85.

Chalcostetha goramensis, sp. n., from the island of Goram, = *Cinnyris aspasioides* (Gray, 1860).

1874. SALVADORI, Count TOMMASO. Intorno al genere *Hermotimia*, Reich. Atti R. Acc. Sc. Torino, vol. i (1874), pp. 201, 234, pl.

The author gives for this genus the literature, classification, geographical distribution, descriptions, and synonymy of eleven species, and figures *H. theresæ*, Salvad., and *H. sangirensis*, Meyer.

The title *Hermotimia theresæ* is here proposed for *Chalcostetha chlorolama*, Salvad. 1874, on account of the latter name having been applied by Dr. Hartlaub (by error) to a West-African species, *Anthreptes tephrolama*.

1874. SHARPE, R. BOWDLER. On a small Collection of Birds from Bulama, one of the Bissagos Islands, W. Africa. P. Z. S. 1874, p. 306.

1874. USSHER, HERBERT TAYLOR. Notes on the Ornithology of the Gold Coast. Ibis, 1874, pp. 58-60.

1875. BARTLETT, EDWARD. List of Mammals and Birds collected by Mr. Waters in Madagascar. P. Z. S. 1875, p. 65.

1875. BLYTH, E., and WALDEN, Viscount. Catalogue of the Mammals and Birds of Burma. J. A. S. B. 1875, part ii, extra number, pp. 140-142.

1875. BOUVIER, A. Afrique occidentale: Catalogue géographique des Oiseaux recueillis par MM. A. Marché et le Marquis de Compiègne (8vo), pp. 13, 14.

Nectarinia affinis, Rüpp., apud Bouvier, = *Cinnyris venustus*. Some of the localities are interesting; for instance, this is the first mention of *Cinnyris superbus* from so far north as Cape Verd, and of *C. cyanolæma* from Sierra Leone.

1875. BROOKS, W. EDWIN. Notes upon a Collection of Birds made between Mussoori and Gangaotri in May 1874. Str. F. vol. iii, p. 233.

1875. BUTLER, Captain E. A. Notes on the Avifauna of Mount Aboo and Northern Guzerat. Str. F. vol. iii, p. 462.

1875. HUME, ALLAN. A First List of the Birds of Upper Pegu. Str. F. vol. iii, pp. 15, 85-87.

1875. HUME ALLAN. A Second List of the Birds of Tenasserim. Str. F. vol. iii, pp. 319, 320.

Anthreptes xanthochlora, sp. n., = *Anthreptes simplex* (S. Müll. 1843).

1875. LEGGE, Lieut. W. VINCENT. On the Birds of the South-eastern Subdivision of Southern Ceylon. Ibis, 1875, pp. 276-286.

1875. MORGAN, RHODES W. On the Nidification of certain South-Indian Birds. Ibis, 1875, pp. 315, 316.

1875. RAMSAY, E. PIERSON. List of Birds met with in North-eastern Queensland, chiefly at Rockingham Bay. P. Z. S. 1875, p. 598.

1875. REICHENOW, Dr. ANTON. Zur Vögelfauna Westafrika's. Ergebnisse einer Reise nach Guinea. J. f. O. 1875, pp. 30, 31.

This paper contains many useful notes, such as a description of the nest of *C. cupreus*, the occurrence of *C. venustus* in Aguapim, &c.

1875. SALVADORI, Count T. Intorno a due collezioni di uccelli di Celebes inviate al Museo Civico di Genova dal Dr. O. Beccari e dal Sig. A. A. Bruijn. Ann. Mus. Civ. Genova, vol. vii (1875), pp. 658-661.

Atthopyga beccarii, sp. n., = *Æ. flavostriata* (Wallace, 1865).

Æ. beccarii, Salvad., and *Herminia porphyrolæma* (Wallace) are figured (pl. 17).

1875. SALVADORI, Count TOMMASO. Catalogo di una collezione di uccelli del gruppo di Hal-mahera e di varie località della Papuasias, inviato in dono al Museo Civico di Genova dal Sig. A. A. Bruijn. Ann. Mus. Civ. Genova, vol. vii (1875), p. 777.

1875. SALVADORI, Count T., and D'ALBERTIS, L. M. Catalogo di una collezione di uccelli dell' isola Yule e della vicina costa meridionale della penisola orientale della Nuova Guinea, raccolti da L. M. D'Albertis. Ann. Mus. Civ. Genova, vol. vii (1875), p. 825.

1875. SALVADORI, Count TOMMASO. Descrizione di cinquantotto nuove specie di uccelli, ed osservazioni intorno ad altre poco note, della Nuova Guinea e di altre isole papuane, raccolte dal Dr. Odoardo Beccari e dai cacciatori del Sig. A. A. Bruijn. Ann. Mus. Civ. Genova, vol. vii (1875), pp. 936-939.

Hermotimia nigriscapularis, sp. n., from Miosnom, = *Cinnyris nigriscapularis* of this work.

1875. SHARPE, R. BOWDLER. Contributions to the Ornithology of Madagascar.—Part IV. P. Z. S. 1875, pp. 75, 76.

Neodrepanis, n. gen. Type *N. coruscans*, n. sp. Figures are given of the head and wing. The specimen from which the descriptions are taken was a male, not in full plumage, in the British Museum. The generic characters were more fully described by me from a perfect specimen sent subsequently by Mr. Crossley (Ibis, 1875, p. 380).

1875. SHARPE, R. BOWDLER. On a Collection of Birds from Labuan. P. Z. S. 1875, pp. 106, 107.

1875. SHELLEY, Captain G. E. Three Months on the Coast of South Africa. Ibis, 1875, pp. 60, 69, 70.

1875. SHELLEY, Captain G. E. A few Stray Notes on African Birds. Ibis, 1875, p. 380.

Some additional characters are given for the genus *Neodrepanis*. The receipt of further specimens has proved that the sexes are very dissimilar in plumage.

1875. WALDEN, ARTHUR. Descriptions of some undescribed Species of Birds discovered by Lieutenant Wardlaw Ramsay in Burma. Ann. & Mag. Nat. Hist. 4th series, vol. xv (1875), pp. 400, 401.

Ethopyga sanguinipectus, sp. n., from Burma.

1875. WALDEN, Viscount. Notes on Birds from Burma. Ibis, 1875, p. 463.

1876. ARMSTRONG, JAMES. Notes on some Birds collected in the Eastern or Rangoon District of the Irrawaddy Delta. Str. F. vol. iv (1876), pp. 313-315.

1876. AYRES, THOMAS. Notes on Birds collected and observed in the Lydenburg District of the Republic of Transvaal. Ibis, 1876, p. 425.

1876. BARRATT, F. A. Ornithological Notes made during Trips between Bloemfontein and the Lydenburg Gold-fields. Ibis, 1876, pp. 202, 203.

1876. BLANFORD, W. T. Eastern Persia. An account of the Journeys of the Persian Boundary Commission, 1870-71-72, vol. ii. Geology and Zoology (8vo, London), pp. 220-222, pl. 14.

Mr. Blanford here gives three good figures of *Nectarinia (Arachnechthra) brevirostris*, Blanf. (= *C. asiaticus*, Lath.), as well as his personal notes. He met with a Sun-bird near Maskat, Arabia, which, not being in breeding-plumage, he was unable to determine.

1876. BOCAGE, J. V. BARBOZA DU. Aves das possessões portuguezas d'Africa occidental. Jorn. Lisboa, part xix (1876), p. 151, part xx (1876), p. 252.

1876. BOCAGE, J. V. BARBOZA DU. Aves d'Angola encontradas nas collecções de Dr. Welwitsch. Jorn. Lisboa, part xx (1876), p. 262.

1876. BRÜGGEMANN, Dr. F. Beiträge zur Ornithologie von Celebes und Sangir. Abhandl. nat. Ver. zu Bremen, vol. v (1876), pp. 72-74.

Nectarinia porphyrolæma of this paper is, so he informs us (p. 465), *Chalcostetha insignis* (Jard.), new to Celebes. He describes the young male and the female of *Æ. flavostriata* (Wallace) for the first time.

1876. BRÜGGEMANN, Dr. F. Ueber eine Vögelsammlung aus Südost-Borneo. Abhandl. nat. Ver. zu Bremen, vol. v (1876), p. 458.

1876. BRÜGGEMANN, Dr. F. Nachträgliche Notizen zur Ornithologie von Celebes. Abhandl. nat. Ver. zu Bremen, vol. v (1876), pp. 465, 466.

Cinnyris auriceps (Gray) is here mentioned from Celebes for the first time.

1876. FAIRBANK, Rev. S. B. List of Birds collected in the vicinity of Khandala, Mahabaleshwar, and Belgam, along the Sabyadri Mountains, and near Ahmednagar, in the Dakhan. Str. F. vol. iv (1876), pp. 255, 256.

1876. HUME, ALLAN. A first List of the Birds of the Travancore Hills. Str. F. vol. iv (1876), pp. 392, 393.

1876. HUME, ALLAN. The Laccadives and the West Coast. Str. F. vol. iv, p. 458.

1876. OUSTALET, E. Journ. de l'Institut (1876), p. 108.

Æthopyga flagrans, sp. n., from Luzon, is described. I have been unable to refer to this paper in print; but the author kindly lent me his MS.

1876. SALVADORI, Count T. Catalogo di una collezione di uccelli dell' isola di Buru, inviata al Museo Civico di Genova dal Signor A. A. Bruijn. Ann. Mus. Civ. Genova, vol. viii (1876), p. 379.

1876. SALVADORI, Count T. Catalogo degli uccelli raccolti dai Sigg. A. A. Bruijn ed O. Beccari durante il viaggio del trasporto da guerra olandese *Surabaya* dal novembre 1875 al gennaio 1876. Ann. Mus. Civ. Genova, vol. viii (1876), p. 400.

1876. SALVADORI, Count TOMMASO. Catalogo di una seconda collezione di uccelli raccolti dal Sig. L. M. D'Albertis nell' isola Yule e sulla vicina costa della Nuova Guinea e di una piccola collezione della regione bagnata dal fiume Fly. Ann. Mus. Civ. Genova, vol. ix (1876), pp. 30, 31.

Two specimens of *Hermotimia* in imperfect plumage, one from the Fly River and one from Naiabui, he thinks may belong to new species. They are included by me in *Cinnyris aspasia*, Less., for want of sufficient reason for their separation.

1876. SALVADORI, Count TOMMASO. Intorno a due piccole collezioni di uccelli, l'una di Petta (isole Sanghir) e l'altra di Tifore e di Batang Keteil, inviate dal Signor A. A. Bruijn al Museo Civico di Genova. Ann. Mus. Civ. Genova, vol. ix (1876), pp. 56-58.

The author here describes nine variations in plumage of *Hermotimia sanghirensis*. The specimens of *Anthothreptes malaccensis* he examined from the Sanghir Islands all had the bill notably large; and *Æthopyga? duyvenbodei*, he suggests, may require a new genus for its reception.

1876. SHARPE, R. BOWDLER. The Birds of South Africa, by E. L. Layard. New Edition, thoroughly revised and augmented by R. Bowdler Sharpe. Part iv (1876), pp. 305-322.

This work contains a careful account of the habits and distribution in South Africa of fifteen species of Sun-birds.

1876. SHARPE, R. BOWDLER. On Dr. Steere's Expedition to the Philippines. Nature (3rd August, 1876), p. 297.

The author here describes the following new species:—

Æthopyga pulcherrima, sp. n., from Basilan, = *Eudrepanis pulcherrima* of this work.

Æ. shelleyi, sp. n., from Palawan and Balabac.

Æ. magnifica, sp. n., from Negros.

Arachnothera dilutior, sp. n., from Palawan.

1876. SHARPE, R. BOWDLER. On the Birds collected by Professor J. B. Steere in the Philippine Archipelago. Trans. Linn. Soc. 2nd series, vol. i (1879), pp. 341-343. Read November 16th, 1876.

Anthreptes chlorigaster, sp. n., from Negros, = *A. chlorigaster* of this work.

1876. SHARPE, R. BOWDLER. Contributions to the Ornithology of Borneo.—Part I. Ibis, 1876, p. 42.

1876. SHARPE, R. BOWDLER, and BOUVIER, A. Études d'Ornithologie africaine. Bull. Soc. Zool. France, vol. i (1876), pp. 41, 42.

This is a catalogue of a collection made by M. Louis Petit at Landana and Chinchonxo (Congo).

1876. WALDEN, ARTHUR, Viscount. Notes on the late Colonel Tickell's manuscript Work entitled "Illustrations of Indian Ornithology." Ibis, 1876, pp. 347-349.

With regard to *Æthopyga seheria* the author writes (p. 348):—"Colonel Tickell identifies it with *Æ. miles*; and as his original description of the Borabloom bird agrees to the letter with *Æ. miles*, I have little doubt that *N. seheria* = *Æ. miles*, in which case Colonel Tickell's title will have precedence."

1877. BOCAGE, J. V. BARBOZA DU. Ornithologie d'Angola (8vo, Lisbonne), 1^{ière} Partie (1877), pp. 162-179.

This is a comprehensive work upon the birds of Angola and Benguela, and it gives full details of the Sun-birds known from those provinces. Since the publication of this part, three new species of Sun-birds have been described from Caconda, in Benguela. These are:—

Anthreptes anchietæ (Bocage), Journ. Lisb. 1878, p. 208.

Cinnyris oustaleti (Bocage), tom. cit. p. 254.

Nectarinia bocagii, Shelley, 1879.

1877. BOCAGE, J. V. BARBOZA DU. Aves das possessões portuguezas d'Africa occidental. Journ. Lisboa, part xxi (1877), p. 66 ; part xxii (1877), p. 153.

1877. BOUVIER, A. Faune Ornithologique de Kessang (presqu'île de Malacca). Bull. Soc. Zool. France, vol. ii (1877), p. 300.

1877. D'ALBERTIS, M. L. Notes on some Birds collected during the Exploration of the Fly River. Ibis, 1877, p. 367.

1877. DAVID, Abbé ARMAND, and OUSTALET, E. Les Oiseaux de la Chine (royal 8vo, 1877), pp. 80-82.

Æthopyga dabryi is figured (pl. 11).

1877. FAIRBANK, Rev. S. B. A List of Birds collected and observed in the Palani Hills. Str. F. vol. v, pp. 397-399.

1877. FISCHER, Dr. G. A. Bricfliche Reiseberichte aus Ost-Afrika. J. f. O. 1877, pp. 178, 208.

1877. GAMMIE, J. A. Occasional Notes from Sikkim.—No. 1. Str. F. vol. v, pp. 385, 386.

1877. HARTLAUB, Dr. G. Die Vögel Madagascars und der benachbarten Inselgruppen (8vo, Halle, 1877), pp. 87-95.

The female of *Cinnyris coquereli* is here described.

1877. HUME, ALLAN. A first List of the Birds of North-eastern Cachar. Str. F. vol. v (1877), p. 28.

1877. HUME, ALLAN. Novelties. Str. F. vol. v (1877), pp. 51-53.

Æthopyga waldeni, sp. n., = *Æ. sanguinipectus*, Walden (1875).

1877. HUME, ALLAN. Sun-birds. Str. F. vol. v (1877), pp. 69-73.

1877. HUME, ALLAN. Notes. Str. F. vol. v (1877), pp. 122, 123.

1877. HUME, ALLAN. A Monograph of the Cinnyridæ, or Family of Sun-birds. Str. F. vol. v, pp. 267-275.

A review of the first three parts of the present work.

1877. HUME, ALLAN. Notes on Nomenclature.—II. Str. F. vol. v (1877), pp. 275-280.

1877. HUME, ALLAN. Novelties. Str. F. vol. v, pp. 487, 488.

Arachnothera simillima is described as a new species. It has been referred by me to

Arachnoraphis flavigastra; and I still hold to that opinion, notwithstanding Mr. Hume's recent note (Str. F. vii, p. 170).

1877. NEWTON, E. On a Collection of Birds from the Island of Anjuan. P. Z. S. 1877, p. 297.
Some notes are given on the nest and eggs of *Cinnyris comorensis*.

1877. OATES, EUGENE W. Notes on the Nidification of some Burmese Birds. Str. F. vol. v, pp. 147, 148.
These notes refer to *Anthreptes phœnicotis* and *Cinnyris flammixillaris*.

1877. REICHENOW, Dr. A. Die ornithologischen Sammlungen der deutschen Expedition nach der Loango-Küste. J. f. O. 1877, p. 25.

1877. SALVADORI, Count T. Catalogo della prima collezione di uccelli fatta nella Nuova Guinea nel 1872 dal Signor L. M. D'Albertis. Ann. Mus. Civ. Genova, vol. x (1877), p. 143.

1877. SALVADORI, Count T. Intorno alle specie di Nettarinie della Papuasias, delle Molucche e del gruppo di Celebes. Atti R. Acc. Sc. Torino, vol. xii, pp. 299–321, 1877.

1877. SCLATER, P. L. On the Birds collected by Mr. George Brown, C.M.Z.S., on the Duke-of-York Island and on the adjacent parts of New Ireland and New Britain. P. Z. S. 1877, pp. 102–104.

Cinnyris aspasix is here recorded for the first time from the Duke-of-York Island.

1877. SCLATER, P. L. Report on the Collection of Birds made during the Voyage of H.M.S. 'Challenger.'—No. III. On the Birds of the Admiralty Islands. P. Z. S. 1877, p. 553.

1877. SHARPE, R. BOWDLER. Contributions to the Ornithology of Borneo.—Part II. Ibis, 1877, pp. 17, 18.

1877. TWEEDDALE, ARTHUR, Marquis of. Description of some new Species of Birds. Ann. & Mag. Nat. Hist. 4th series, xx, pp. 537, 538.

Æthopyga bella, sp. n., from Mindanao.

1877. TWEEDDALE, ARTHUR, Marquis of. Reports on the Collections of Birds made during the Voyage of H.M.S. 'Challenger.'—No. II. On the Birds of the Philippine Islands. P. Z. S. 1877, pp. 536–548.

Nectarophila julix, sp. n., from Malanipa is described (p. 547), = *Cinnyris julix* of this work.

1877. TWEEDDALE, ARTHUR, Marquis of. Contributions to the Ornithology of the Philippines.—No. I. On the Collection made by Mr. A. H. Everett in the Island of Luzon. P. Z. S. 1877, p. 698.

1877. TWEEDDALE, ARTHUR, Marquis of. Contributions to the Ornithology of the Philippines.—No. II. On the Collection made by Mr. A. H. Everett in the Island of Zebu. P. Z. S. 1877, p. 763.

1877. TWEEDDALE, ARTHUR, Marquis of. Contributions to the Ornithology of the Philippines.—No. III. On the Collection made by Mr. A. H. Everett in the Island of Mindanao. P. Z. S. 1877, pp. 829–831.
Eudrepanis bella. A full description is given.
Anthreptes griseigularis, n. sp., = *Anthreptes griseigularis* of this work.
1877. TWEEDDALE, ARTHUR, Marquis of. On a Collection of Birds made by Mr. E. C. Buxton in the District of Lampong, S.E. Sumatra. Ibis, 1877, pp. 300–302.
1878. ANDERSON, JOHN. Anatomical and Zoological Researches and Zoological Results of the Yunnan Expedition (4to, London, 1878), pp. 661–663, pl. 49.
Arachnechthra edeni is here described and figured as a new species from Bhamô and from Tenasserim. It is apparently nothing but the large purple form of *Cinnyris asiaticus* (Lath.), to which Mr. Hume applied the title of *Arachnechthra intermedia* in 1870.
Ethopyga miles (Hodgs.), apud Anderson, = *Æ. seheriæ* (Tickell), from Sawady and Bhamô.
The other species mentioned are:—*Æ. dabryi*, from Bhamô, Shitee, Meru, and Ponsee; *Chalcoparia cingalensis* (= *Anthreptes phonicotis*), from Sawady.
1878. BALL, V. From the Ganges to the Godaverî. Str. F. vol. vii, p. 208.
1878. BOCAGE, J. V. BARBOZA DU. Aves das possessões portuguezas d'Africa occidental. Jorn. Lisboa, part xxiii (1878), pp. 195, 196, 203.
Nectarinia anchietæ, sp. n., no description.
N. tacazze, Stanl., apud Bocage, = *N. bocagii*, Shelley, 1879.
N. albiventris?, = *Cinnyris oustaleti* (Bocage), tom. cit. p. 254.
1878. BOCAGE, J. V. BARBOZA DU. Mélanges ornithologiques. Jorn. Lisboa, parts xxiii & xxiv (1878), pp. 208–210, 254, 255.
Page 208. *Nectarinia anchietæ*, sp. n., from Caconda, described, = *Anthreptes anchietæ* of this work.
Page 209. *N. intermedia*, sp. n. (nec Hume), from Caconda, = *Cinnyris afer* (Linn. 1766).
Page 254. *N. oustaleti*, sp. n., from Caconda, = *Cinnyris oustaleti* of this work.
1878. CABANIS, J. Uebersicht der Vögel Ost-Afrikas, welche von den Herrn J. M. Hildebrandt und v. Kalckreuth gesammelt sind. J. f. O. 1878, pp. 205, 226, 227.
The species here referred to were collected in the northern half of the Zanzibar Province, and include, amongst others:—*Anthreptes longuemarii* and *Cinnyris affinis* from Ndi, in the Taita country, both new to East Africa; and from Mombas, Adi, and Kitui, *Cinnyris (Chalcomitra) kalckreuthi*, sp. n., = *Cinnyris kirkii*, Shelley, 1876.
1878. CRIPPS, J. R. First List of the Birds of Furreedpore, Eastern Bengal. Str. F. vol. vii (1878), p. 267.
1878. DAVISON and WENDEN. A Contribution to the Avifauna of the Deccan. Str. F. vol. vii (1878), p. 79.

1878. FISCHER, Dr. G. A., and REICHENOW, Dr. ANT. Uebersicht der von Dr. G. A. Fischer auf Sansibar und während einer Reise durch das Küstenland von Mombassa bis Wito gesammelten oder sicher beobachteten Vögel. J. f. O. 1878, p. 260.
1878. FORBES, W. A. Reports on the Collections of Birds made during the Voyage of H.M.S. 'Challenger.'—No. VII. On the Birds of Cape York and the neighbouring Islands (Raine, Wednesday, and Booby Islands). P. Z. S. 1878, p. 125.
1878. GOULD, J. Birds of New Guinea.—The Birds of New Guinea and adjacent Papuan Islands, including any New Species that may be discovered in Australia (folio, 1878), part viii.
C. maforensis, *C. mysorensis*, *C. sangirensis* are figured.
1878. HUME, A. O., and DAVISON. A revised List of the Birds of Tenasserim. Str. F. vol. vi, pp. 173–192, 507.
 A whole volume of 'Stray Feathers' is devoted to this list, which is most exhaustively worked out. The Sun-birds are fully described, with field-notes of great interest.
1878. HUME, ALLAN. A second List of the Birds of Southern Travancore. Str. F. vol. vii (1878), p. 35.
Arachnothera longirostra is here recorded from its most southern limit in India.
1878. HUME, ALLAN. Note. Str. F. vol. vii (1878), p. 170.
 On the occurrence of three additional specimens of *Arachnothera simillima*, Hume, a form which, in my opinion, is only a variety of *Arachnoraphis flavigastra* (Eyton).
1878. NICHOLSON, FRANCIS. On a Collection of Birds from Abeokuta. P. Z. S. 1878, pp. 129, 130.
1878. NICHOLSON, FRANCIS. A List of Birds collected by Mr. E. C. Buxton at Darra-Salam, on the Coast of Africa, opposite Zanzibar. P. Z. S. 1878, pp. 355, 356.
1878. RAMSAY, E. P. Contributions to the Zoology of New Guinea. Proc. Linn. Soc. New South Wales, vol. iii (1878), pp. 287, 288.
Cinnyris frenatus and *C. aspasie* are recorded from Port Moresby, and descriptions of their nests and eggs are given.
1878. SALVADORI, Count T. Report on the Collection of Birds made during the Voyage of H.M.S. 'Challenger.'—No. VI. On the Birds of Ternate, Amboyna, Banda, the Ké Islands, and the Aru Islands. P. Z. S. 1878, pp. 79–82, 97.
1878. SALVADORI, Count T. Catalogo di una collezione di uccelli di Tarawai. Atti R. Acc. Sc. Torino, vol. xiii (1878), pp. 319–321.
 Count Salvadori here describes *Hermotimia cornelia* as a new species from the island of Tarawai. In my opinion it is a subspecies which I should not myself separate from *Cinnyris aspasie*, Less.

1878. SALVADORI, Count TOMMASO. 'Intorno agl' individui del genere *Hermotimia* dell' Isola del Duca di York.' Atti R. Acc. Sc. Torino, vol. xiii, pp. 530-534.

Hermotimia corinna is described as a new species from the Duke-of-York Island. This, in my opinion, is not more than a subspecies of *Cinnyris aspasix*, Less.

1878. SHARPE, R. BOWDLER. Contributions to the Ornithology of Borneo.—Part III. On Two Collections of Birds from Sarawak. Ibis, 1878, p. 419.

Æthopyga temmincki is new to the fauna of this island.

1878. TWEEDDALE, ARTHUR, Marquis of. Contributions to the Ornithology of the Philippines. — No. IV. On the Collection made by Mr. A. H. Everett in the Islands of Dinagat, Bazol, Nipah, and Sakuyok. P. Z. S. 1878, pp. 112, 113.

Æthopyga dubia, sp. n., from Dinagat. I believe this to be female and male in moult of *Eudrepanis pulcherrima*, Sharpe; but such cannot be proved to be the case until the arrival of more specimens.

1878. TWEEDDALE, ARTHUR, Marquis of. Contributions to the Ornithology of the Philippines.—No. V. On the Collection made by Mr. A. H. Everett in the Island of Negros. P. Z. S. 1878, pp. 286, 287.

1878. TWEEDDALE, ARTHUR, Marquis of. Contributions to the Ornithology of the Philippines.—No. VI. On the Collection made by Mr. A. H. Everett in the Island of Leyte. P. Z. S. 1878, p. 343.

Arachnothera flammifera, sp. n.

1878. TWEEDDALE, ARTHUR, Marquis of. Contributions to the Ornithology of the Philippines.—No. IX. On the Collection made by Mr. A. H. Everett in the Island of Palawan. P. Z. S. 1878, pp. 620, 621.

Cyrtostomus aurora, sp. n., = *Cinnyris aurora* of this work.

1878. TWEEDDALE, ARTHUR, Marquis of. Contributions to the Ornithology of the Philippines.—No. X. On the Collection made by Mr. A. H. Everett in the Island of Bohol. P. Z. S. 1878, p. 710.

1878. TWEEDDALE, ARTHUR, Marquis of. Contributions to the Ornithology of the Philippines.—No. XI. On the Collection made by Mr. A. H. Everett at Zamboanga, in the Island of Mindanao. P. Z. S. 1878, p. 951.

1879. AYRES, T. Additional Notes on the Ornithology of Transvaal. Ibis, 1879, p. 294.

1879. FINSCH, Dr. OTTO. On a Collection of Birds made by Mr. Hübner on Duke-of-York Island and New Britain. P. Z. S. 1879, pp. 10, 11.

1879. GRANDIDIER, ALFRED. Histoire physique, naturelle et politique de Madagascar (4to, Paris, 1879), pls. 105-108 a.

Good figures are here given of the plumage and skeletons of the three Mascarene Sun-birds.

1879. LEGGE, Captain W. VINCENT. A History of the Birds of Ceylon (4to, 1879), part ii, pp. 563-573.

This work contains a very full account of the birds of this island, with excellent field-notes.

1879. MEYER, Dr. A. B. Field-notes on the Birds of Celebes.—Part II. Ibis, 1879, pp. 131, 132.

The notes made by the author himself during his stay on the island, from December 1870 till November 1871, refer to *Anthreptes celebensis*, *Cinnyris porphyrolæmus*, *C. frenatus*, *C. grayi*, and *Æthopyga flavostriata*.

1879. NICHOLSON, FRANCIS. On a Collection of Birds made by the late Mr. E. C. Buxton in Western Java. Ibis, 1879, p. 166.

1879. OUSTALET, E. Note sur une petite collection d'oiseaux provenant des îles Loss (Afrique occidentale). Nouvelles Archives du Muséum, 2^me série, 4to, Paris, 1879, p. 152.

Anthreptes longuemarii is the only Sun-bird here recorded from these islands near Sierra Leone.

1879. OUSTALET, E. Catalogue méthodique des oiseaux recueillis par M. Marche dans son voyage sur l'Ogooué, avec description des espèces nouvelles. Nouvelles Archives du Muséum, 2^me série, 4to, Paris, 1879, pp. 83-96, 131, 132.

1879. SALVADORI, Count T. Letter from. Ibis, 1879, p. 106.

Count Salvadori here maintains that *Cinnyris corinna* is specifically distinct from *C. aspasia*.

1879. SALVADORI, TOMMASO. Catalogo di una collezione di uccelli fatta nella parte occidentale di Sumatra dal Prof. Odoardo Beccari. Ann. Mus. Civ. Genova, vol. xiv (1879), pp. 212-215.

Ten species of Sun-birds are recorded.

1879. SHARPE, R. B. A List of the Birds of Labuan Island and its Dependencies. P. Z. S. 1879, pp. 341-343.

Six species are recorded from this island; and in most cases the eggs are described.

1879. SHARPE, R. BOWDLER. Contributions to the Ornithology of Borneo.—Part IV. On the Birds of the Province of Lumbidan, North-western Borneo. Ibis, 1879, pp. 259-261.

The collections here described contained eleven species of Sun-birds. They were all known as inhabitants of the island, with the exception of *Anthreptes rhodolæma*, which is recorded from Borneo for the first time.

1879. TWEEDDALE, ARTHUR, Marquis of. Contributions to the Ornithology of the Philippines.—No. XII. On the Collection made by Mr. A. H. Everett in the Island of Basilan. P. Z. S. 1879, p. 72.

Five Sun-birds were collected on this island: four are referred to *Cinnyris jugularis* (Linn.), one of which has a broad metallic blue frontal patch. The fifth, a female, is referred to *Anthreptes chlorigastra*, Sharpe.

1876–1880. SHELLEY, Captain G. E. A Monograph of the Nectariniidæ, or Family of Sun-birds. 4to, London.

One hundred and thirty-eight species of Sun-birds are recognized; and all are figured, with the exception of *Cinnyris heuglini*, Shelley, 1879, = *C. fazoqlensis*, Finsch, 1871, in Heugl. N.O.-Afr. App. p. lxx.

The following genera and species are here described as new:—

1876. Parts I, II, p. 343. *Anthodiata zambesiana*, sp. n., from E. Africa, = *Anthreptes zambesiana*.
 p. 219. *Cinnyris microrhyncha*, sp. n., from Zanzibar district.
 p. 80. *Uodrepanis*, gen. n. Type *U. christinæ*.
 p. 273. *Cinnyris kirkii*, sp. n., from E. Africa.
 p. 17. *Nectarinia cupreonitens*, sp. n., from N.E. Africa.
1877. Parts III, IV, V, p. 83. *Eudrepanis*, Sharpe, gen. n. Type *E. pulcherrima*.
 p. 227. *Cinnyris bouvieri*, sp. n., from the Congo.
 p. 101. *C. morotensis*, sp. n., from Morty Island.
 p. 105. *C. salvadorii*, sp. n., from Jobi Island.
1878. Parts VI, VII, VIII, p. 313. *Anthreptes rhodolama*, sp. n., from Malacca and Sumatra.
 p. 319. *A. celebensis*, sp. n., from Celebes.
1879. Parts IX, X, p. 241. *Cinnyris heuglini*, Shelley, 1879, = *C. fazoqlensis*, Finsch, 1871.
 p. 21. *Nectarinia bocagii*, sp. n., from Caconda, in Benguela.

Fifty-two species and the females of several others are here figured for the first time. They are as follows:—

Plate 1.	<i>Neodrepanis coruscans</i> .	Plate 36.	<i>Cinnyris proserpinus</i> (lege <i>proserpina</i>).
„ 6, fig. 1.	<i>Nectarinia cupreonitens</i> .	„ 37, fig. 1.	<i>C. aspasioides</i> .
„ 6, fig. 2.	<i>N. bocagii</i> .	„ 38.	<i>C. cornelia</i> .
„ 10, fig. 2.	<i>Æthopyga horsfieldi</i> .	„ 39.	<i>C. corinnæ</i> .
„ 11, fig. 2.	<i>Æ. saturata</i> ♀.	„ 40, fig. 1.	<i>C. maforensis</i> .
„ 12.	<i>Æ. sanguinipectus</i> .	„ 40, fig. 2.	<i>C. mysorensis</i> .
„ 13, fig. 1.	<i>Æ. dabryi</i> ♀.	„ 41, fig. 1.	<i>C. theresiæ</i> (lege <i>theresa</i>) ♂ juv.
„ 17.	<i>Æ. magnifica</i> .	„ 43, figs. 2, 3.	<i>C. speratus</i> ♂ juv. et ♀.
„ 20.	<i>Æ. nicobarica</i> .	„ 44.	<i>C. julia</i> .
„ 21.	<i>Æ. cara</i> .	„ 47, fig. 1.	<i>C. aurora</i> .
„ 24.	<i>Æ. shelleyi</i> .	„ 47, fig. 2.	<i>C. flagrans</i> .
„ 25.	<i>Æ. bella</i> .	„ 50.	<i>C. andamanicus</i> .
„ 27.	<i>Eudrepanis duyvenbodei</i> .	„ 51.	<i>C. flammixillaris</i> .
„ 28.	<i>E. pulcherrima</i> .	„ 52.	<i>C. rhizophora</i> .
„ 29.	<i>E. dubia</i> .	„ 61.	<i>C. johannæ</i> .
„ 33.	<i>Cinnyris sangirensis</i> , males in moult and ♀.	„ 64, fig. 1.	<i>C. osiris</i> .
„ 34, fig. 1.	<i>C. auriceps</i> .	„ 68.	<i>C. comorensis</i> .
„ 34, fig. 2.	<i>C. morotensis</i> .	„ 70.	<i>C. bouvieri</i> .
„ 35, fig. 1.	<i>C. nigriscapularis</i> .		
„ 35, fig. 2.	<i>C. salvadorii</i> .		

Plate 72, fig. 1. <i>Cinnyris oustaleti</i> .	Plate 104. <i>Anthreptes griseigularis</i> .
„ 72, fig. 2. <i>Anthreptes tephrolæma</i> .	„ 106. <i>A. anchietæ</i> .
„ 82, fig. 2. <i>Cinnyris acik</i> ♀.	„ 107, figs. 1, 2. <i>A. rectirostris</i> ♀ et ♂ juv.
„ 85. <i>C. kirkii</i> .	„ 109. <i>A. aurantia</i> .
„ 91. <i>C. olivaceus</i> .	„ 110, fig. 3. <i>A. collaris</i> , nestling.
„ 93. <i>C. dussumieri</i> .	„ 111, fig. 3. <i>A. zambesiana</i> .
„ 94. <i>C. hartlaubi</i> .	„ 112, fig. 2. <i>Arachnothera aurata</i> .
„ 95. <i>C. cyanolæmus</i> .	„ 113, fig. 2. <i>A. modesta</i> .
„ 96. <i>C. reichenbachii</i> .	„ 115. <i>A. flammifera</i> .
„ 101, fig. 1. <i>Anthreptes rhodolæma</i> .	„ 116. <i>A. dilutior</i> .
„ 103, fig. 1. <i>A. chlorigastra</i> .	
„ 103, figs. 2, 3. <i>A. celebensis</i> .	

The family is divided into three subfamilies, containing in all twelve genera, as follows:—

I. Subfam. Neodrepaninæ.

Gen. 1. *Neodrepanis*, Sharpe, 1875.

II. Subfam. Nectariniinæ.

Gen. 2. *Hedydipna*, Cab. 1850.

„ 3. *Nectarinia*, Ill. 1811.

„ 4. *Anthobaphes*, Cab. 1850.

„ 5. *Æthopyga*, Cab. 1850.

„ 6. *Uodrepanis*, Shelley, 1876.

„ 7. *Eudrepanis*, Sharpe, 1876.

„ 8. *Chalcostetha*, Cab. 1850.

„ 9. *Cinnyris*, Cuv. 1817.

„ 10. *Anthreptes*, Swains. 1830.

III. Subfam. Arachnotherinæ.

Gen. 11. *Arachnothera*, Temm. 1826.

„ 12. *Arachnoraphis*, Reichb. 1854.

The following alterations of original titles are not admitted:—

Nectarinia formosa, Bp. 1854, nom. emend. pro *N. famosa*, Linn.

N. tacaziana, Heugl. 1871, and *N. tacazziana*, Finsch, 1872, nom. emend. pro *N. tacazze*, Stanl.

Arachnothera eytonii, Salvad. 1874, for *Arachnoraphis flavigastra* (Eyton).

With regard to synonymy and general remarks:—

Pages xviii, 21. *Nectarinia bocagii*. Hab. Benguela, not Angola. Syn. ?*Cinnyris perreini*, Vieill. 1819.

„ 29. *Æthopyga dabryi* is the correct spelling.

„ 53. *Æ. flavostriata*, Wallace, 1865. Syn. *Æ. beccarii*, Salvad. 1875.

„ 57. *Æ. siparaja*, Raffles, 1820. Syn. *Nectarinia lathamii*, Jard. 1842; *Æthopyga eupogon*, Cab. 1850; *Æ. chalcopogon*, Reichb. 1854.

„ 67. *Æ. seheriæ* (Tickell, 1833). Syn. *Cinnyris miles*, Hodgk. 1837; *Nectarinia goalpariensis*, Jard. 1842.

„ 71. *Æ. vigorsi* (Sykes, 1832). Syn. *Cinnyris concolor*, Sykes, 1832.

- Page 85. *Eudrepanis dubia* (Tweedd. 1878) is probably the female or immature male of *E. pulcherrima*, Sharpe.
- „ 113. *Cinnyris aspasie*, Less. 1826. Syn. *Nectarinia amasia*, S. Müll. 1843; *Chalcostetha chlorocephala*, Salvad. 1874.
- „ 125. *C. theresæ* (Salvad. 1874). Syn. *Chalcostetha chlorolæma*, Salvad. 1874, a name cancelled by the original describer on account of its having been previously employed.
- „ 127. *C. hasselti* (Temm. 1825). Syn. *Certhia brasiliiana*, Gm. 1788. This latter title is discarded on account of the species not being found in Brazil.
- „ 149. *C. aurora* (Tweedd. 1878) may prove to be only a variety of *C. jugularis*.
- „ 173. *C. zenobia*, Less. 1826. Syn. ?*Certhia cirrhata*, Lath. 1790.
- „ 178. *C. lotenius* (Linn. 1766). The Ceylon race differs slightly, but not specifically, from the Indian race.
- „ xxxvi, 181. *C. asiaticus* (Lath. 1790). Syn. ?*Certhia curruccaria*, Linn. 1766, can only be doubtfully referred to this species; *Arachnechthra intermedia*, Hume, 1870; *Nectarinia brevirostris*, Blanford, 1873; *Arachnechthra edeni*, Anders. 1878.
- „ 191. *C. cupreus* (Shaw, 1811). Syn. *Nectarinia chalcea*, Hartl. 1862.
- „ 199. *C. johannæ*, Verr. 1851. Syn. *Nectarinia fasciata*, Jard. & Fraser, 1852.
- „ 201. *C. splendidus* (Shaw, 1811). Syn. ?*Certhia coccinigastra*, Lath. 1801. Although probably belonging to this species, Latham's description is not quite conclusive.
- „ 205. *C. habessinicus* (Hempr. & Ehr.). The spelling of this title being correct, no alteration can be admitted.
- „ 205. *C. erythrocerius* (Heugl. 1856). Syn. *Nectarinia erythrocerca*, Heugl. 1856, is only a misprint, corrected by the author in 1864.
- „ 211. *C. mariquensis*, Smith, 1839. Hab. S. Africa. Syn. *Nectarinia bifasciata*, Jard. 1842, nec Shaw, 1811.
- „ 217. *C. bifasciatus* (Shaw, 1811). Hab. W. Africa. Syn. *Nectarinia jardinei*, Verr. 1857.
- „ xxxix, 229, 231. *C. leucogaster*, Vicill. 1819. Syn. *Nectarinia talatala*, Smith, 1836; *Nectarinia anderssonii*, Strickl. & Sclat.
- „ xxxix, 241. *Cinnyris fazoglensis*, Finsch, 1871. Syn. *Cinnyris heuglini*, Shelley, 1879.
- „ 249. *C. afer* (Linn. 1766). Syn. *Nectarinia ludovicensis*, Bocage, 1868.
- „ xl, 253. *C. chalybeus* (Linn. 1766). Syn. *Nectarinia intermedia*, Bocage, 1878.
- „ 259. *C. cruentatus* (Rüpp. 1845). Syn. *Cinnyris proteus*, Rüpp. 1835. This latter title cannot be used, because it was intended for the S.-African bird.
- „ 261. *C. gutturalis*, Linn. 1766. Syn. *Cinnyris discolor*, Bianconi, 1850, nec Vicill.
- „ xli, 273. *Cinnyris kirkii*, Shelley, 1876. Syn. *Cinnyris kalckreuthi*, Cab. 1878.
- „ 279. *Cinnyris angolensis*, Less. 1831. Syn. ?*Cinnyris rubescens*, Vicill. 1819.
- „ 291. *C. obscurus* (Jard. 1842). Syn. *Nectarinia fraseri*, Dohrn, 1866, nec Jard. & Selby.

- Page 297. *C. cyanolæmus*, Jard. 1851. The female of this species is here recognized for the first time.
- „ 301. *Cinnyris verticalis* (Lath. 1790). Syn. *Certhia cyanocephala*, Shaw, 1811, is the adult male.
- „ 305. *Anthreptes hypogrammica* (S. Müll. 1843). Syn. *Anthreptes macularia*, Blyth, 1842, sine descr.; *Anthreptes nuchalis*, Blyth, December 1843.
- „ 309. *Anthreptes simplex* (S. Müll. 1843). Syn. *Anthreptes xanthochlora*, Hume, 1875.
- „ 325. *Anthreptes phœnicotis* (Temm. 1824). Syn. *Motacilla singalensis*, Gm. 1788. This older title is rejected on account of the species not being found in Ceylon.
- „ 331. *A. rectirostris* (Shaw, 1811). Syn. *Nectarinia phœothorax*, Hartl. 1861; *N. fantensis*, Sharpe, 1870; *N. tephrolama*, Sharpe, 1872, nec Jard. & Fraser, from Fantee; *N. gabonica*, Sharpe, 1872, from Fantee, is the adult female represented plate 107, fig. 1. The “adult female” described p. 331 is real immature male.
- „ 333. *A. tephrolama* (Jard. & Fraser, 1851). The bird described as “adult p. 333, is really immature male (see p. xlv). The true female of this sp is *Nectarinia gabonica*, Hartl.
- „ 345. *A. hypodila* (Jard. 1851). Syn. *Anthodieta subcollaris*, Reichb. 1854.
- „ 357. *Arachnothera longirostra* (Lath. 1790), Syn. *A. pusilla*, Blyth, 1849.
- „ 367. *Arachnographis robusta* (Müll. & Schl. 1846). Syn. *Arachnothera armata* & Schl. 1846; *A. uropygialis*, Gray, 1847.
- „ 371. *A. crassirostris* (Reichb. 1854). Syn. *Arachnot.* & Moore.
- „ 373. *A. flavigaster* (Eyton, 1839). Syn. *Arachnothera* 577.
- „ 377, 381. *Promerops cafer* (Linn. 1766) and *P. gurneyi*, 1 from the family of Sun-birds.

In the part entitled Classification there are keys to the Subfa . . . , and Species ; and it is followed by a table of Geographical Distribution.



NEODREPANIS CORUSCANS.

(WATTLED SUN-BIRD.)

Neodrepanis coruscans, Sharpe, P. Z. S. 1875, p. 76; Shelley, Ibis, 1875, p. 380.

♂ *ad.* suprâ chalybeus, tectricibus alarum nigricantibus, minimis dorso concoloribus, reliquis autem flavicantibus latè lavatis: remigibus eodem modo coloratis, secundariis intimi dorso concoloribus: caudâ nigrâ, rectricibus latè chalybeo marginatis: regione oculari nudâ caruncula caruleis ornatâ: subtus flavus, plumarum basi celatâ nigrâ: rostro et pedibus nigris: iride brunneâ.

Hab. in insulâ "Madagascar" dictâ.


Adult Male. Upper parts steel-blue, with a few yellow feathers on the sides of the forehead; large bare eye-wattles (covering almost the entire sides of the head) greyish blue; a narrow margin of black feathers in front and on the lower edge of these wattles; wings black, primaries narrowly edged with yellow, secondaries and the greater and median coverts broadly edged with that colour; the innermost secondaries and wing-coverts, and all the least series of coverts, steel-blue, the latter shaded with green; tail black, the feathers broadly edged with steel-blue; underparts yellow, with the basal portions of the feathers black, slightly showing through on the breast; under wing-coverts yellow; bill and legs black; irides dark brown. Total length 4.1 inches, culmen 1.15, wing 2.0, tail 1.0, tarsus 0.6.

● *Obs.* The type is similar to the adult male above described, excepting that the wattles on the sides of the head are absent; upper half of the head olive-yellow with a few steel-blue feathers; the dark portion of the wings dark brown instead of black. Total length 3.5 inches, culmen 1.1, wing 1.9, tail 1.0, tarsus 0.55.

HAB. Madagascar.

THIS very peculiar and little-known Sun-bird is a native of Madagascar, whence Mr. Crossley has sent home the only specimens known, which are figured here for the first time. The type specimen, which is in the British Museum, appears to be an immature male; and from its plumage being mottled on the upper portion of the head with dull olive-yellow plumes, and from most of the quills being dark brown instead of black, and the wattles on the sides of the head almost absent, we may conclude that the young bird differs very considerably from the fully plumaged adult male. Now with all known Sun-birds the females are without metallic plumes, excepting in a few species of the genus *Anthodiæta*, where the metallic feathers are likewise present in the nestlings. For these reasons I conclude that the female of the *Neodrepanis* will be found not to possess metallic colours, and that the type in the British Museum is a male in not quite full plumage. Mr. Sharpe observes (P. Z. S. 1875, p. 76), when he describes the new genus *Neodrepanis*, that it is "allied to *Nectarinia* and *Cinnyris*, but at once to be distinguished by its scimitar-like bill and nearly obsolete first and sinuated second primary." Mr. Sharpe had at the time not seen the adult male, as this arrived later on, and I was enabled to add (Ibis, 1875, p. 380) the

striking character of the wattles round the eyes. These are not developed in the British-Museum specimen; and thus it was that Mr. Sharpe did not mention them. I wish to retract my observation that, with the exception of the wattles, the sexes are similar in plumage, as it was founded on the belief that the British-Museum specimen was a female; and I must also correct the statement that the first primary is nearly obsolete, the feather taken for the first primary being in reality the outer primary-covert.

So far removed is this species from all the other *Cinnyridæ* that it must be placed in a separate subfamily, to which I here give the name of *Neodrepaninæ*, with the following characters:—General appearance, form of the tongue, nostrils, and feet as in *Cinnyris*; wing with ten primary quills, the first  obsolete, but sinuated or cut away on the inner margin towards the tip, which is sharply pointed, this quill not much shorter than the second and longer than the seventh; bill long, much curved, and tapering to a fine rather flexible point; tail square and short. Males in full plumage have wattles of bare skin on the sides of the head.

The knowledge of this very interesting form is due to that energetic collector Mr. Crossley, who has kindly informed me that he only met with it at Ampasmanhave, about 150 miles to the south-west of Tamatave. As he is again about to start for Madagascar, we may hope to obtain some additional information respecting this and the many other novelties with which he has made us acquainted of late years.



HEDYDIPNA METALLICA

HEDYDIPNA METALLICA.

(BLUE-COLLARED LONG-TAILED SUN-BIRD.)

Nectarinia metallica, Licht. Verz. Doubl. p. 15 (1823); Temm. Pl. Col. 347, figs. 1, 2 (1825); Hempr. & Ehr. Symb. Phys. pl. 1 (1828); Rüpp. Atlas, Vög. p. 10, pl. 7 (1828); Jard. Monogr. Sun-birds, pp. 211, 260 (1842); Rüpp. Syst. Uebers. p. 28 (1845); Gray, Gen. B. i, p. 98, no. 29 (1847); Strickl. P. Z. S. 1850, p. 216; Sclat. Contrib. Orn. 1852, p. 124; Brehm, J. f. O. 1853, p. 456; Licht. Nomencl. Av. p. 55 (1854); Müll. J. f. O. 1855, p. 14, no. 152; Brehm, tom. cit. p. 375; Heugl. Syst. Uebers. Vög. N.O.-Afr. p. 20 (1856); Brehm, J. f. O. 1856, p. 397; Schl. Handl. Dierk. p. 256 (1857); Heugl. Ibis, 1860, p. 430; id. Faun. Roth. Meer. p. 21 (1861); Brehm, Habesch, pp. 211, 281 (1863); Heugl. J. f. O. 1864, p. 262; Hartm. J. f. O. 1866, p. 236; Heugl. Reise Weissen Nil, p. 337 (1869); Finsch, Trans. Z. S. vii, p. 228 (1869); Gray, Hand-l. B. i, p. 109, no. 1334 (1869); Finsch & Hartl. Vög. Ost-Afr. p. 214 (1870); Blanford, Geol. & Zool. Abyss. p. 353 (1870); Heugl. Orn. N.O.-Afr. p. 224 (1871); Sharpe, Cat. Afr. B. p. 40, no. 380 (1871); Shelley, Ibis, 1871, p. 135; id. B. Egypt, p. 112, pl. 4 (1872); Heugl. J. f. O. 1874, p. 48.

Cinnyris metallicus, Less. Man. d'Orn. ii, p. 37 (1828); Rüpp. Neue Wirb. p. 90 (1835); Ferr. et Gal. Voy. Abyss. iii, p. 248 (1847); Bp. Consp. Av. i, p. 406, no. 11 (1850).

Soui-manga métallique, Lefebvre, Voy. Abyss. Ois. p. 89 (1845-50).

Hedydipna metallica, Cab. Mus. Hein. i, p. 101 (1850); Reichb. Handb. Scansoriæ, p. 299, no. 700, pl. 583, figs. 3959-62 (1854); Antin. Cat. Descritt. Ucc. p. 36 (1864); Hartm. J. f. O. 1864, p. 147; Antin. & Salvad. Ann. Mus. Civic. Genova, iv, pp. 90, 453 (1873).

Nectarinia, sp.?, Heugl. Ibis, 1859, p. 340.

♂ *ad.* suprâ lætè metallicè viridis, tectricibus alarum minimis et medianis dorso concoloribus: remigibus brunneis, tectricibus majoribus et secundariis intimis angustissimè violaceo limbatis: dorso postico, uropygio et supracaudalibus lætè metallicè violaceis: rectricibus indigotico-nigris, vix ad basin marginaliter violaceis: capitis lateribus et gutture toto dorso concoloribus: fasciâ latâ præpectoralis metallicè violaceâ: corpore reliquo subtùs lætè flavo, subcaudalibus albicantioribus: tibiis nigris: subalaribus nigris: remigibus infrâ brunneis intùs marginaliter cineraceis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* mari dissimilis: suprâ cinerascens, tectricibus minimis et medianis dorso concoloribus: majoribus remigibusque brunneis extùs cinerascenti limbatis: secundariis intimis paullò nigricantioribus cinerascenti-albo marginatis: rectricibus duabus centralibus cinerascenti-brunneis angustè albo marginatis et terminatis, reliquis nigris, exterioribus intùs albo terminaliter maculatis: fasciâ indistinctâ superciliari cinerascenti-albâ: facie laterali flavicanti-albâ, regione paroticâ summâ cinerascente: corpore reliquo subtùs pallidè flavido, gutture et subcaudalibus albicantibus: tibiis cinerascantibus.

Hab. in Africâ septentrionali-orientali.

Adult Male. Entire head and neck, upper half of the back, scapulars, and the least and median series of wing-coverts deep metallic green; lower half of the back and the upper tail-coverts brilliant steel-blue, shaded with violet; in front of the eye a triangular patch of black feathers; remainder of the wings black, the greater coverts partially margined with metallic violet and green; the quills narrowly margined with pale brown; tail black, glossed with blue, the feathers partially edged with steel-blue or metallic violet; a broad violet-shaded steel-blue collar at the base of the metallic-green throat; entire breast rich gamboge-yellow, slightly paler on the sides of the chest, and partially fading into white on the under tail-coverts; thighs black; under surface of the wings dark brown, with the coverts black; bill and legs black; irides dark brown. Total length 6·8 inches, culmen 0·4, wing 2·2, tail 4·3, tarsus 0·6.

Adult Female. Upper parts pale ashy brown; a broad buff eyebrow and a narrow band of black feathers in front of the eye; wings and tail dark brown, with pale brown edges to all the feathers; tail narrowly tipped with white, which colour widens out considerably on the inner webs of the outer feathers; underparts white, shaded with pale yellow on the breast; bill black, fading into pale brown at the base of the lower mandible; irides and legs dark brown. Total length 3·7 inches, culmen 0·4, wing 2·1, tail 1·5, tarsus 0·6.

Male in moult. Similar in plumage to the adult female, excepting that it is mottled all over with feathers of the adult male plumage, and has the breast bright yellow.

HAB. North-east Africa.

THE small genus *Hedydipna* is restricted to the Ethiopian Region, where it is represented by two species, *H. metallica* and *H. platyura*. It is characterized by the bill being very short and rather wide towards the base; and the males in full plumage, as in the genus *Nectarinia*, possess two long central tail-feathers.

From *H. platyura* the present species may be most readily recognized by the steel-blue collar at the base of the metallic green throat.

This beautiful Sun-bird is confined to North-eastern Africa. In the lowlands of Abyssinia and in Southern Nubia it is a resident throughout the year, while it extends its range as a spring and summer migrant further north than any other member of this family upon the African continent, ranging in the Nile valley down to the First Cataract (in lat. 24° N.).

On the 10th of April, while on the Nile, I procured my first specimens near Korosko, and frequently met with it afterwards to within a few miles of the lovely island of Philæ, which overlooks the first cataract. They were at the time in full breeding-plumage, and exhibited no kind of fear, but fluttered within a few yards of me about the sparsely scattered flowering-plants which decorate the river-banks, or chased each other around the "sont" trees, on the outer boughs of which a pair would frequently sun themselves side by side, preening their feathers, and twittering in a sweet little duet, made the more pleasing by their graceful attitudes and their apparently perfect enjoyment rather than from any great variety in their song. The latter, indeed, only consists of a few soft notes, and rather suggested the idea of a pleasant *tête-à-tête* between two happy lovers: and no doubt such was really the case; for these birds were evidently, at that season, migrating down the Nile in search of a suitable spot for the construction of their nest.

According to Von Heuglin the breeding-plumage is attained, without a regular moult, in June and July, at which time they also commence breeding. However, when I met with them on the Nile in April they had then attained their complete nuptial dress, and, I have no doubt, were just about to construct their nests. They have two broods in the year.

The nest is of an oval form, with the entrance on one side, and consists of grass, fine roots, and fibre, closely and prettily woven together, and is attached to the end of a bough, usually of some acacia tree, at no great distance from water. Internally the nest is narrow and deep, and is lined with very fine roots, the down of plants, wool, and feathers, and contains from two to four eggs. The eggs are much elongated, and have very thin shells; their colour, according to Von Heuglin, is white with a roseate blush, a few pale rufous spots, and some larger dark grey or violet-brown marks. This description agrees with some of the eggs collected by Antinori and Beccari; but they found the colour vary considerably.

Mr. Jesse collected three specimens "about two miles from the plains of Koomaylee up in the hills in quite a cool temperature, full 1200 feet above the sea; this was in March." On his return, at the end of May, they were plentiful in the plains of Koomaylee, but in very bad plumage, the males having all lost the long tail-feathers; and he concludes that the breeding-season was then over. Koomaylee is a small village a short distance inland from Annesley Bay. Mr. Blanford also found it at Koomaylee common in pairs in July, and apparently commencing to breed. "After the breeding-season," he writes, "this bird probably loses its long tail-feathers, as they were wanting in a specimen I shot in the beginning of August. I also met with *N. metallica* in Samhar, the Lebka valley, and very rarely on the Anseba."

The range of this species is, as far as we yet know, limited to the Nile valley and the country to the eastward from 12° to 24° N. lat.—that is to say, from the First Cataract on the Nile to the Gulf of Tajurrah, opposite Aden. Near this latter locality Antinori and Beccari procured numerous specimens at Kursi; so that in all probability its range may extend somewhat further south. They also met with it at Monkullu, opposite Massowah, in March, April, October, and November, and therefore consider it to be a resident there. How far westward from the Nile valley it may extend we are unable to say, but presume that its range in that direction is very limited, or it would be found on the west coast.

The adult male and female which I have here figured and described were collected by myself on the Nile, near Korosko.



HEDYDIPNA PLATURA.

• (GREEN-COLLARED LONG-TAILED SUN-BIRD.)

Le Sucrier figuier, Levaill. Ois. d'Afr. vi, p. 157, pl. 293, fig. 2 (1808); Sundev. Krit. om Levaill. p. 56 (1857).

Cinnyris platurus, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 501 (1819); Aud. et Vieill. Enc. Méth. ii, p. 589 (1823); Less. Man. d'Orn. ii, p. 40 (1828).

Saccharine Creeper, Lath. Gen. Hist. B. iv, p. 225, no. 13 (1822).

Comyns Creeper, Lath. tom. cit. p. 229, no. 17.

Nectarinia cyanopygos, Licht. Verz. Doubl. p. 15 (1823); id. Nomencl. Av. p. 55 (1854); Müll. J. f. O. 1855, p. 15, no. 162.

Nectarinia sylvilla, Temm. Pl. Col. 347, note (1825).

Nectarinia platura, Drapiez, Dict. Class. xv, p. 511 (1829); Jard. Monogr. Sun-birds, pp. 209, 260, pl. 19 (1842); Bp. Consp. Av. i, p. 405, no. 6 (1850); Hartl. J. f. O. 1854, p. 9, no. 103; Müll. J. f. O. 1855, p. 14, no. 151; Hartl. Orn. W.-Afr. p. 53, no. 153 (1857); id. J. f. O. 1861, p. 109; Heugl. J. f. O. 1864, pp. 261, 262; Antin. Cat. p. 36 (1864); Hartm. J. f. O. 1866, p. 237; Heugl. J. f. O. 1867, p. 202; Layard, B. S. Afr. p. 83, no. 140 (1867); Heugl. Weissen Nil, p. 337 (1869); Gray, Hand-l. B. i, p. 109, no. 1333 (1869); Finsch et Hartl. Vög. Ost-Afr. p. 215 (1870); Sharpe, Cat. Afr. B. p. 40, no. 379 (1871).

Cinnyris sylvellus, Less. Traité d'Orn. i, p. 294, no. 10 (1831).

Platydyipna platyura, Cab. Mus. Hein. i, p. 101 (1850).

Hedydipna platyura, Reichb. Handb. Scansoriae, p. 299, no. 699, pl. 583, figs. 3963-64 (1854).

Nectarinia platyura, Heugl. Orn. N.O.-Afr. p. 225 (1871).

♂ ad. suprà metallicè viridis cupreo lavatus, pileo summo cupreo nitente: tectricibus alarum mediis et minimis dorso concoloribus, reliquis nigricantibus, majoribus interioribus metallicè viridi limbatis: remigibus nigricanti-brunneis pallidè brunneo extùs limbatis, supracaudalibus metallicè violaceis: rectricibus saturatè brunneis pallidiùs terminatis, duabus centralibus nigris, violascenti-bronzino marginatis: plagâ anteculari nigrâ: capitis et colli lateribus pileo concoloribus: gutture metallicè smaragdineo, aurco nitente: corpore reliquo subtùs lætè flavo: tibiis saturatè brunneis: subalaribus et remigibus infrà saturatè brunneis, his intùs pallidioribus: rostro et pedibus nigris: iride saturatè brunneâ.

Hab. in Africâ occidentali et septentrionali-orientali.

Adult Male. Upper parts metallic green strongly shaded with golden copper; least and median series of wing-coverts and broad margins to most of the greater coverts metallic golden green; remainder of the wings dark brown with narrow pale edges to the quills; upper tail-coverts bronzy violet, and the lower back partially shaded with that colour; two centre tail-feathers bluish black, partially edged with

violet-bronze, remainder of the tail-feathers dark brown, with narrow pale ends; in front of the eye a triangular patch of black feathers; sides of the head and sides of the neck metallic golden green like the crown; chin and throat metallic green, of a more emerald shade than the back, but strongly glossed with gold; entire breast and under tail-coverts rich gamboge-yellow; thighs dark brown; under surface of the wings dark brown with the inner margins of the quills paler; bill and legs black; irides dark brown. Total length 6 inches, culmen 0·4, wing 2·15, tail 3·5, tarsus 0·55.

HAB. White-Nile district and northern portion of West Africa.

BESIDES the short bill and two elongated centre tail-feathers which belong to this genus, the members are also well marked by their bright yellow breasts. The present species may be readily distinguished from *H. metallica* by the entire throat being green, not terminating in a steel-blue collar; and the metallic portions of the plumage are also strongly glossed with golden copper.

In North-eastern Africa its range appears to be limited to the western side of the White Nile, and its northern range to be Kordofan, whence there is a specimen in the Cambridge Museum collected by Petherick.

According to Von Heuglin it assumes its full plumage during the rainy season in September and October, and its habits and song resemble those of the closely allied *H. metallica*, and like that bird it is only met with singly or in pairs. All his specimens he procured in the Upper White-Nile district, between the Djur and Kasanga rivers: here it was also met with by Antinori around the flowers of the acacia trees.

In West Africa its range is confined to the northern portion, where it appears to be fairly plentiful and evenly distributed from Senegal to Sierra Leone. Temminck records it from the Guinea coast; but if it does occur so far south it must be only as a straggler, for we have no authority for its ever ranging so far south as Fantec.

The adult male, which we have here figured and described, is from St. Louis, in Senegal, and belongs to the Marquis of Tweeddale.



NECTARINIA PULCHELLA.

(BEAUTIFUL SUN-BIRD.)

- Le Grimpereau à longue queue du Sénégal*, Briss. Orn. iii, p. 645, no. 21, pl. 34, fig. 3 (1760); D'Aubent. Pl. Enl. pl. 670, fig. 1.
- Certhia pulchella*, Linn. S. N. i, p. 187, no. 19 (1766); P. L. S. Müll. S. N. ii, p. 259, no. 19 (1773); Gm. S. N. i, p. 481 (1788); Lath. Ind. Orn. i, p. 288 (1790); Shaw, Gen. Zool. viii, p. 210 (1811); Bechst. Kurze Uebers. p. 182, no. 23 (1812).
- Soui-manga vert doré changeant à longue queue du Sénégal*, Montb. Hist. Ois. v, p. 519 (1778).
- Beautiful Creeper*, Lath. Gen. Syn. B. ii, p. 719, no. 20 (1781); id. Gen. Hist. B. iv, p. 217, no. 5 (1822).
- Le Soui-manga à longue queue*, Aud. et Vieill. Ois. Dor. ii, p. 62, pl. 40 (1802).
- Le Sucrier Cossu*, Levaill. Ois. d'Afr. vi, p. 154, pl. 293, fig. 1 (1808); Sundev. Krit. om Levaill. p. 56 (1857).
- Cinnyris pulchellus*, Cuv. Règn. Anim. i, p. 412 (1817); Bonn. et Vieill. Enc. Méth. ii, p. 586 (1823); Less. Man. d'Orn. ii, p. 26 (1828); id. Traité d'Orn. p. 293, no. 5 (1831); Rüpp. Neue Wirb. p. 90 (1835); Swains. B. W. Afr. ii, p. 123, pl. 14 (1837); Ferr. et Gal. Voy. Abyss. iii, p. 248 (1847).
- Cinnyris caudatus*, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 508 (1819); Bonn. et Vieill. Enc. Méth. ii, p. 595 (1823); Less. Man. d'Orn. ii, p. 54 (1828).
- Nectarinia melampogon*, Licht. Verz. Doubl. p. 15 (1823); Hartl. J. f. O. 1854, p. 9; Licht. Nomencl. Av. p. 55 (1854); Müll. J. f. O. 1855, p. 15; Hartl. Orn. W.-Afr. p. 52, no. 152 (1857); Heugl. J. f. O. 1864, p. 262.
- Nectarinia pulchella*, Jard. Monogr. Sun-birds, pp. 207, 259, pl. 18 (1842); Rüpp. Syst. Uebers. p. 28, no. 107 (1845); Bp. Consp. Av. i, p. 404 (1850); Strickl. P. Z. S. 1850, p. 216; Brehm, J. f. O. 1853, p. 456, App. p. 97; Hartl. J. f. O. 1854, p. 9; Müll. J. f. O. 1855, p. 14; Heugl. Syst. Uebers. Vög. N.O.-Afr. p. 20 (1856); Brehm, J. f. O. 1856, p. 488; Hartl. Orn. W. Afr. p. 52, no. 151 (1857); Schl. Handl. Dierk. p. 256 (1857); Hartl. J. f. O. 1861, p. 109; Heugl. J. f. O. 1864, p. 261; Antin. Cat. Descrip. Ucc. p. 35 (1864); Hartmann, J. f. O. 1866, p. 208; Bocage, Journ. Lisb. 1866, p. 136; Layard, B. S. Afr. p. 82, no. 139 (1867); Heugl. Reise Weissen Nil, p. 337 (1869); Sharpe, Ibis, 1869, p. 383; Gray, Handl. B. i, p. 109, no. 1332 (1869); Finsch, Trans. Z. S. vii, p. 227 (1869); Blanf. Geol. & Zool. Abyss. p. 354 (1870); Sharpe, Cat. Afr. B. p. 40, no. 378 (1871); Heugl. Orn. N.O.-Afr. p. 223 (1871).
- Panæola pulchella*, Cab. Mus. Hein. i, p. 101, no. 552 (1850); Reichb. Handb. Scansoria, p. 297, no. 696, pl. 581, figs. 3952-53 (1854); Bp. Comptes Rendus, 1854, p. 256; Antin. & Salvad. Ann. Mus. Civic. Genova, iv, pp. 90, 453 (1873).

ad. supra lætè metallicè viridis, tectricibus alarum minimis et medianis dorso concoloribus: majoribus et

remigibus saturatè brunneis : rectricibus nigris, metallicè viridi marginatis : maculâ anteoculari triquetra nigra : facie laterali et corpore subtùs metallicè viridibus : plagâ præpectoralis conspicuâ scarlatinâ, utrinque flavâ : plumis præpectoris lateralibus flavo terminatis et subterminaliter metallicè viridi fasciatis : subalaribus et remigibus infrâ nigricantibus, margine alari metallicè viridi : rostro et pedibus nigris : iride saturatè brunneâ.

♀ *ad.* mari dissimilis : suprâ cinerascanti-brunnea, vix olivaceo tincta : supercilio lato parum conspicuo, fulvescente : tectricibus alarum minimis et medianis dorso concoloribus : majoribus remigibusque saturatè brunneis, pallidè brunneo limbatis : rectricibus nigris, viridi adumbratis, albo terminatis, lateralibus latiùs apicatis et extùs albidis : subtùs pallidè fulvescens, pectore sulfureo lavato : subalaribus albis : remigibus infrâ saturatè brunneis, intùs albidis : rostro et pedibus nigris : iride saturatè brunneâ.

Hab. in Africâ occidentali et in parte septentrionali Africæ orientalis.

Adult Male. General plumage rich metallic green; the quills and greater wing-coverts dark brown; tail black, the feathers partially edged with metallic green; a triangular patch of black feathers in front of the eye; on the front of the chest a large patch of bright scarlet, with some pale yellow on each side, owing to the ends of the feathers being of that colour, with subterminal narrow metallic green bars; bill and legs black; irides dark brown. Total length 6·5 inches, culmen 0·6, wing 2·2, tail 4, tarsus 0·55.

Adult Female. Upper parts ashy brown, very slightly tinted with olive; a broad, but rather indistinct, buff eyebrow; wings dark brown, with pale brown edges to the feathers; upper tail-coverts dark brown, with broad ashy brown edges; tail-feathers black with a greenish gloss, and with white ends, increasing in breadth towards the outer ones, which are also margined on their outer webs with white; under surface of the body buff, shaded with sulphur-yellow on the breast; under surface of the wings dark brown, with the inner margins of the quills and the coverts white; bill and legs black; irides dark brown. Total length 4 inches, culmen 0·6, wing 2·1, tail 1·8, tarsus 0·6.

Young Male. Similar to the adult female, excepting that the chin and centre of the throat are dusky black.

Male in moult. Similar in plumage to the adult female, excepting that some of the feathers on the sides and back of the head, scapulars, and upper tail-coverts are tipped with metallic green; the least and median series of wing-coverts are entirely metallic green; the two centre tail-feathers as in the adult male, the other tail-feathers with pale ends, narrower than in the female; down the centre of the throat a broad metallic green band; entire under surface of the wings dark brown.

HAB. North-east Africa and West Africa from Senegal to the Gold Coast.

THESE brilliant little Sun-birds are characterized by the adult males in full plumage having two long centre tail-feathers, as well as the entire body metallic green, with a scarlet patch on the chest flanked on the sides with pale yellow.

They inhabit both North-eastern and Western Africa, from 16° N. lat. to probably about 4° north of the equator; but their southern limits are far from being satisfactorily defined.

With regard to their eastern range Von Heuglin, in his large work upon the Ornithology of North-eastern Africa, observes that they occur but rarely in Nubia. He found them not uncommon in Bogos Land, the lowlands of Abyssinia, in Taka, Sennaar, Kordofan, and parts of the White-Nile district, where they remain in pairs throughout the year, and frequent the

gardens, cotton-fields, and brushwood, but are rarely met with far from water. In Abyssinia he procured specimens in the mountains up to an elevation of from 5000 to 6000 feet; and he informs us that the males assume their full plumage during the rainy season, in May and June, and retain it until December.

Antinori and Beccari during their travels in North-eastern Africa collected specimens on the Anseba river, in Bogos Land, in May, and at Karen in June, and found it equally distributed from Samhar to Barka, in the Bogos country, where it was frequently seen during the flowering-season of the "tamarind," around the blossoms of which they procure an abundance of small insects.

Von Heuglin also obtained specimens at Bongo and at Wau, on the Gazelle river; while Messrs. Jesse and Blanford only met with these birds on the banks of the Anseba river, at Waliko and Bejook, during the months of July and August. Here, according to Mr. Blanford, it was "common, especially in the thickets near the river, usually upon high acacia trees, but not seen anywhere else. Females were very rarely noticed. This bird has a fine song."

Dr. Brehm found a nest of these birds on the 12th of September; it was suspended from an exposed bough of a low mimosa tree, in the thick forest, and consisted principally of the seed-shucks of *Calotropis procera*. It contained two rather round white eggs.

In West Africa it ranges from Senegal to the Gold Coast. In the British Museum I have examined specimens from Senegal, collected by M. Marche, from Dakar, on the Cape-Verd peninsula, and on the river Gambia from Bathurst and Daranka. From Casamanse and Bissao it is recorded on the authority of M. Verreaux. Dr. W. Fergusson collected it at Sierra Leone.

From Fantee it was first noted by Mr. Sharpe in 1869; but it is not an uncommon species there, although not so plentiful as most of the other Sun-birds. I have seen it myself in that country in the thick bush near the small brook at Abrobonko, six miles from Cape-Coast Castle. Here in February the males were in full plumage, and might be occasionally watched as they flitted around the flowering-plants at the edge of the small native plantations and clearings, but not in company with the other species, which were so abundant in the large flowering-trees.

Southward of the Gold Coast I can find no authentic instance of its having been captured; and there can be no doubt that M. Le Vaillant was wrong in describing the species as a native of South Africa.

With a large series of specimens before me from North-east and West Africa I can detect no variation or sign of local races.

The adult male is here figured and described from one of my specimens from Senegal.

The adult female and the immature birds, or males in moult, described above, are from Senegal and Dakar, the last three from Mr. Sharpe's collection, now the property of the British Museum.



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NECTARINIA FAMOSA.

(MALACHITE SUN-BIRD.)

- Certhia famosa*, Linn. S. N. i. p. 187. no. 20 (1766); P. L. S. Müll. S. N. ii. p. 259. no. 20 (1773); Gm. S. N. i. p. 481. no. 20 (1788); Lath. Ind. Orn. i. p. 288. no. 24 (1790); Shaw, Nat. Misc. i. pl. 19 (1790); Shaw, Gen. 5 in the bloss (1811); Bechst. Kurze Uebers. p. 182. no. 24 (1812). attractive plants, the
- Grimpereau à longue queue du Cap de Bon* them to the same bus 81, fig. 1 (1770-86).
- Trochilus pella* (pt., Africa), P. L. S. (disposition) chasing b. 81, fig. 9 (1773).
- Trochilus capensis*, P. L. S. Müll. pursuer and rev. 100. no. 1 (1770).
- Soui-manga vert à longue queue*, Buff. Hist. Nat. Ois. v. p. 521 (1778).
- Famous Creeper*, Lath. Gen. Syn. B. ii. p. 720. no. 21 (1781); id. Gen. Syn. Supp. p. 128. no. 21 (1787); id. Gen. Hist. B. iv. p. 214. no. 4. A et B (1822).
- Snuff-coloured Creeper*, Lath. Gen. Syn. Supp. p. 129. no. 50 (1787); id. Gen. Hist. B. iv. p. 218. no. 6 (1822).
- Certhia tabacina*, Lath. Ind. Orn. i. p. 289. no. 26 (1790); Shaw, Gen. Zool. viii. p. 214 (1811); Bechst. Kurze Uebers. p. 183. no. 26 (1812).
- Jeune Soui-manga*, Aud. et Vieill. Ois. Dor. ii. p. 48, pl. 26 bis (1802).
- Le Grand Soui-manga à longue queue*, Aud. et Vieill. tom. cit. pp. 59, 60, pls. 37, 38.
- Soui-manga couleur de tabac*, Aud. et Vieill. tom. cit. p. 67 (ex Lath.).
- Le Sucrier malachite*, Levaill. Ois. d'Afr. vi. p. 143, pls. 289, 290 (1808); Sundev. Krit. om mal. Levaill. p. 56 (1857).
- thr *Nectarinia famosa*, Ill. Prod. p. 210 (1811); Burchell, Trav. S. Afr. i. p. 245 (1822); Licht. Verz. Doubl. p. 15 (1823); Jard. Monogr. Sun-birds, pp. 204, 259, pl. 17 (1843); Rüpp. Syst. Uebers. p. 28 (1845); Blyth, Cat. B. Mus. A. S. B. p. 223. no. 1349 (1849); Bp. Consp. Av. i. p. 404. no. 2 (1850); Cab. Mus. Hein. i. p. 102. no. 561 (1850); Reichb. Handb. Scansoriæ, p. 296. no. 695, pl. 581. figs. 3949-51 (1854); Müll. J. f. O. 1855, p. 14. no. 147; Schl. Handb. Dierk. p. 256 (1857); Grill, Zool. Anteckn. pp. 10, 38 (1858); Kirk, Ibis, 1864, p. 320; Pelzeln, Reise Novara, Vög. p. 51 (1865); Layard, B. S. Afr. p. 77. no. 127 (1867); Gurney, Ibis, 1868, p. 43; Gray, Hand-l. B. i. p. 106. no. 1278 (1869); Finsch et Hartl. Vög. Ost-Afr. p. 212 (1870); Ayres, Ibis, 1871, p. 150; Sharpe, Cat. Afr. B. p. 37, no. 342 (1871); Andersson, B. Damara Land, ed. Gurney, p. 68 (1872); Buckley, Ibis, 1874, p. 374; Shelley, Ibis, 1875, p. 69.
- Cinnyris famosa*, Cuv. Règn. Anim. i. p. 412 (1817); Less. Man. d'Orn. ii. p. 59 (1828); id. Traité d'Orn. i. p. 292. no. 3 (1831); Hahn, Orn. Atlas, *Cinnyris*, pl. 3 (1834).

♂ ad. malachitaceo-viridis, splendens, uropygio, scapularibus tectricibusque alarum minimis et medianis, supra-caudalibus et pectore lætioribus: regione anteoculari velutino-nigrâ: alis caudâque nigris, tectricibus majoribus læte viridi marginatis: remigibus bronzino limbatis: tectricibus duabus medianis elongatis

splendide viridi utrinque marginatis, reliquis bronzino-viridi limbatis: fasciis pectoralibus lætè flavis: rostro et pedibus nigris: iride brunneâ.

♀ *ad.* mari dissimilis. Suprà brunnea, alis saturatè brunneis, pallidiùs marginatis: caudâ nigricante, rectricibus omnibus albo apicatis, extimis etiam extùs albis: supercilio indistincto et plagâ supraoculari fulvis: subtùs cinerascens, flavo lavata, fasciâ mystacali utrinque flavicanti-fulvâ: pectore medio, abdomine et subcaudalibus lactescentibus sulphureo lavatis.

♂ *juv.* haud a fœminâ adultâ distinguendus.

Hab. in Africâ meridionali.

Adult Male. General plumage rich metallic golden green; rather less golden and more emerald-green towards the upper tail-coverts and on the breast; in front of the eye a black patch like velvet; wings and tail black; scapulars, lesser and median wing-coverts, and a broad edging to the greater coverts green like the back, primary-coverts and quills partially edged with bronze; centre tail-feathers partially edged with metallic golden green, the others with more bronzy green; pectoral tufts bright yellow; bill and legs black; irides dark brown. Total length 9.2 inches, culmen 1.3, wing 3.15, tail 5.0, tarsus 0.7.

Adult Female. Upper parts brown; wings dark brown, with pale edges to the feathers; tail nearly black, with narrow white ends to the feathers, broadest on the lateral ones, which have also their outer webs white; a rather indistinct eyebrow, and a few feathers below the eye buff; underparts, chin, throat, front of breast, and sides of the body very pale ashy brown, slightly washed with yellow; a band of yellowish buff from the lores down the sides of the throat; centre of the breast, abdomen, and under tail-coverts cream-colour, shaded with sulphur-yellow; bill and legs black; irides dark brown. Total length 5.5 inches, culmen 1.2, wing 2.75, tail 2.05, tarsus 0.65.

Young Male. Similar in plumage to the female.

Male in partial moult. Similar in plumage to the female, excepting that the centre tail-feather is elongated, and the white edging to the feathers almost gone, and almost similar to that in the adult male, as are also the wings, scapulars, and lower back; the buff band from the lores down the sides of the throat indistinct; the breast mottled with metallic-green feathers.

HAB. South Africa. From the southern part of Great Namaqua Land through Little Namaqua Land to the Cape of Good Hope, and from there through Natal and the Transvaal to the Shiré valley in the Zambesi district.

THE Malachite Sun-bird, no less attractive by its graceful form and active habits than by the brilliant green of its plumage and its elongated central tail-feathers, is one of the best-known birds of Africa, never having failed to arrest the attention of the sportsman and traveller, as well as of the naturalist.

It ranges throughout South Africa from Little Namaqua Land to the Cape of Good Hope, and thence along the southern and eastern provinces as high as the Zambesi region. It has been met with at many places in the interior, being generally, but not evenly, distributed.

In the Knysna district it is not uncommon, many specimens having been sent thence by

Mr. Andersson ; and it has also been collected in the Karroo by Victorin, and at Grahamstown by Atmore.

During my travels in South Africa I had frequent opportunities of watching these birds in Cape colony, at Mossel Bay, and at Port Elizabeth. They frequent the flowering bushes which grow so luxuriantly in the sandy African soil, both on the plains and on the mountains, but are rarely met with in the wooded districts.

While in the neighbourhood of the Cape scarcely a day passed without my seeing these lovely birds clinging on to the large flowers, fluttering and twittering with pleasure as they sucked the sweet nectar or captured the small insects embedded in the blossoms. Although frequently collected in considerable numbers around the more attractive plants, they are not gregarious, but only meet from their mutual wants attracting them to the same bushes, which frequently results in one (of a more quarrelsome or playful disposition) chasing his neighbour from the flowering plants where they have met. The pursuer and pursued fly swiftly and low over the ground, darting rapidly round the bushes, disappearing for a moment, and then reappearing again on the topmost twigs of two neighbouring shrubs, when, after a brief rest, they dart off again in their lively play, the rich green plumage flashing in the sunshine as they glance over the dull sandy soil, or flutter round the large crimson flowers of the South-African bushes, or hang about the clustered blossoms of the tall aloes.

Levaillant, in his 'Oiseaux d'Afrique,' is the first traveller who gives us any account of this bird, of which he writes that when the breeding-season has passed, and the young have left the nest, the male throws off its brilliant livery. The bright plumes are dropped by degrees, and are replaced by the dull garb for the winter season. It not only loses its metallic plumes, but even the two long tail-feathers are replaced by shorter ones. The young male on leaving the nest is similar in plumage to the female, but in its first moult it assumes the winter livery of the adult male. After his second moult in the spring he selects his mate, with whom he remains throughout the year. This portion of his observations appears to me to be very accurate ; for in all the species of *Nectarinia* and *Cinnyris* which I have seen in life, the moult appears to be very gradual, and takes a very considerable time to complete ; and during this period of moult they are frequently paired.

Mr. Layard (B. S. Afr. p. 77) observes of this species:—"Common throughout the colony. It is very partial to the blossoms of the Aloe, among which it finds an abundance of its insect food. I have found it plentiful up the ravines of Table Mountain, extending even to the top. It has a shrill, not unpleasing, but short song, and when pursuing a rival utters a piercing scream. It is very combative ; and if two males meet about the same bush a fight is sure to ensue, to the great detriment of the beautiful tail-feathers. The males lose their beauty in the winter season ; and the young birds are just like the females. Eggs, reported to be those of this species, have been given me ; they are of a dull greyish brown colour, minutely mottled all over. They were said to have been taken from a domed nest, suspended from the end of a twig. Since this was written (1865) I have found several nests containing eggs, and can confirm the account given by my correspondent. The eggs are—axis 10^{'''}, diam. 6^{'''}. It abounds on the Cape flats during the flowering of the Protea."

In Mr. Gurney's edition of Andersson's work we find the following extracts from the

notes of that undaunted traveller and accurate observer:—"This splendid species is exceedingly abundant in Little Namaqua Land, and also occurs, though but rarely, in the southernmost parts of Great Namaqua Land. It is usually found permanently established where it has once taken up its abode. Its food consists of insects and the saccharine juice of flowers, in search of which it flits incessantly from one flowering tree or plant to another, now settling and now hovering, but glittering all the while in the sunshine like some brilliant insect or some precious gem. The male, in addition to the beauty of its plumage, possesses a very pleasant warble."

Mr. Burchell, during his travels in the interior of South Africa, found, when he was at Roggeveld on the 1st of August, 1811, "a beautiful Green Sugar-bird (*Nectarinia famosa*) frequenting the thorn trees, and in splendid plumage, surpassing all the other birds of the place."

Beyond Cape colony, to the eastward, it becomes a much scarcer bird. A few specimens have been sent me by Mr. T. L. Ayres from Pinetown, in the neighbourhood of Durban, where it appears to be only migratory, not remaining in that part of the country during our winter months; and I did not meet with it there during February or March.

In 'The Ibis' for 1868 and 1871 are published the following notes made by Mr. Ayres in Natal:—"This bird is found more in the inland part of the colony, frequenting the open country, feeding upon the nectar of the various kinds of aloes abounding in some localities, and also on that of some species of lilies which are numerous in many of the valleys. When disturbed they generally fly right away, unless their attention is attracted by some flower or by others of their own species."

He also writes, "These birds are exceedingly scarce about Potchefstroom; but a few of them frequent the neighbouring hills and open country."

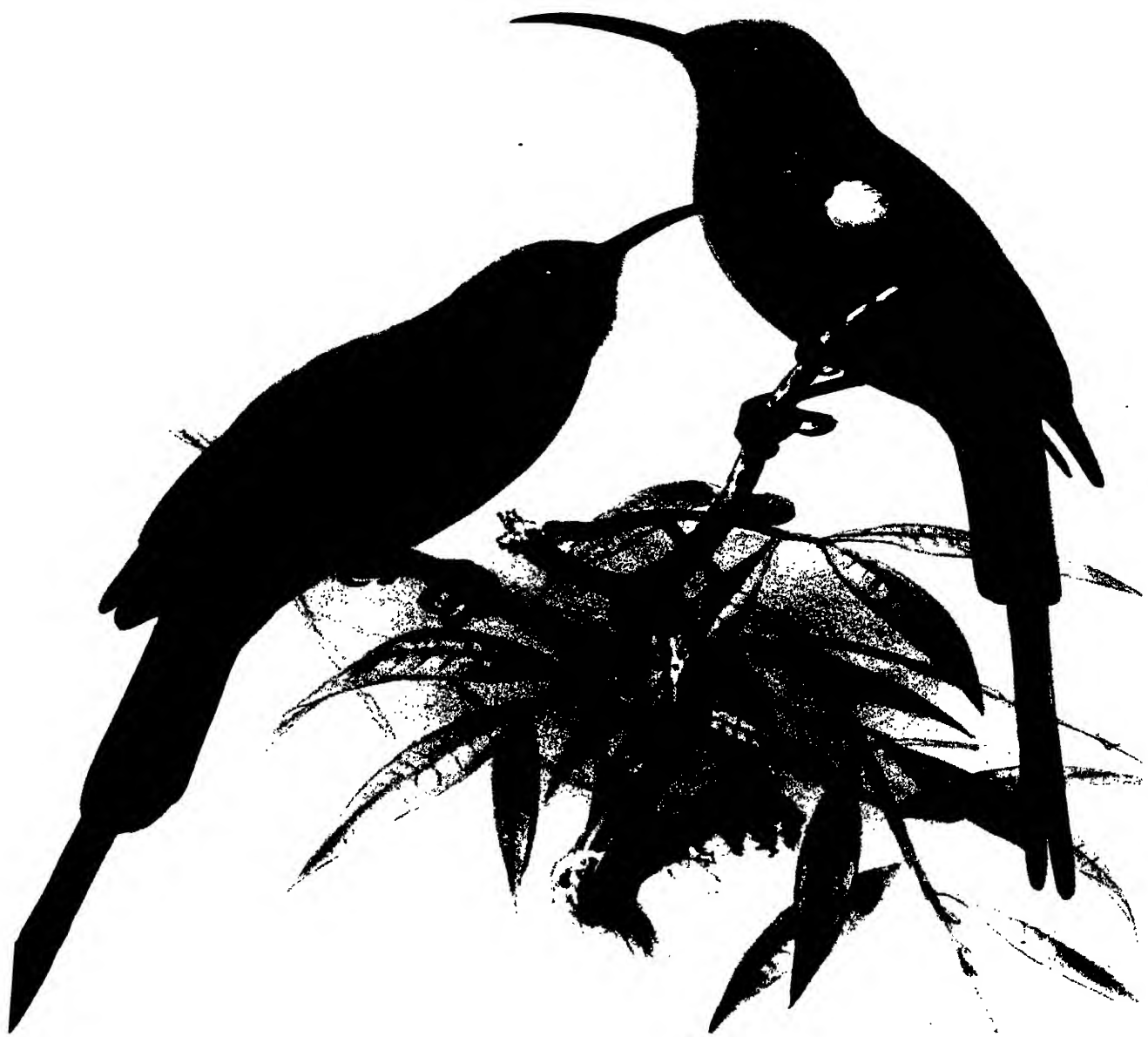
Mr. T. E. Buckley met with this species on the Drakenberg on the 19th of December, 1873, and observes:—"Only seen in this one place, but most likely only a summer visitant. About here I found several pairs living amongst the thick patches of bushes along the small streams that run down the side of the Drakenberg. They were restless, but not at all shy." Although he passed a whole year in the Matabili country, he did not meet with it again. In the Macamac district and at Lydenberg it has been collected by Mr. Barratt.

In the Zambesi district it appears to be very scarce; for Dr. Kirk tells us (*Ibis*, 1864, p. 320), "I have seen this bird but once, in a thick clump of trees near the river Shiré during the rainy season. It is a rare bird in the region."

On comparing Natal specimens with those from Cape colony and Namaqua Land, the former are almost invariably brighter, slightly larger, and with longer centre tail-feathers, but are not specifically distinct.

In Abyssinia there is the closely allied form (*N. cupreonitens*) which has been generally confounded with the South-African bird.

Drs. Finsch and Hartlaub, in their work on the birds of East Africa, describe the adult and young male from Cape specimens, and the female from an Abyssinian one. They mention a young male specimen, in the Bremen Museum, from Casamanse, in Senegal; should the locality attached to this specimen be correct (which I am inclined to doubt), it must be an example of *N. cupreonitens*.



NECTARINIA CUPREONITENS.

(ABYSSINIAN MALACHITE SUN-BIRD.)

Nectarinia famosa, Rüpp. Neue Wirb. p. 90 (1835-40); id. Syst. Uebers. p. 28 (1845); Heugl. Syst. Uebers. p. 20. no. 150 (1856); Brehm, Reis. n. Habesch, p. 211. no. 42 (1863); Heugl. J. f. O. 1864, p. 261; id. Orn. N.O.-Afr. p. 221 (1871).
Souimanga à longue queue, Lefebvr. Voy. Abyss. Zool. p. 88 (1845-50).

♂ *ad. similis N. famosa*, sed corpore superiore et gulâ pectoreque vividè rufescenti-cupreo nitentibus: dorso et tectricibus alarum minimis aurato cupreo lavatis.

♀ *haud a fœminâ N. famosa* distinguenda.

Hab. in Abyssiniâ et Senegambiâ.

Adult Male. Similar in plumage to *N. famosa*, excepting that the head and neck are strongly washed with reddish copper, and the back and lesser wing-coverts with golden copper; the chin and throat are likewise strongly shaded with reddish copper, and the feathers on the front of the chest are partially shaded with the same colour; irides dark brown; bill and legs black. Total length 7·9 inches, culmen 1·15, wing 3·1, tail 4·5, tarsus 0·65.

Adult Female. "Oberseite, Kopf und Halsseiten olivenbräunlich; Flügel und Schwanz dunkler mit schwachem grünlichen Metallscheine und fahlbräunlichen Säumen an der Aussenfahne; Schwanzfedern fahlweiss gespitzt, die äusserste an der Aussenfahne weiss; Kinn, Kehle und Kropf olivenbräunlich, schwachgelblich verwaschen; übrige Unterseite blassolivengelb; untere Schwanzdecken weisslich; jederseits von der Basis des Unterschnabels ein verloschener blassgelblicher Strich herab. Schnabel und Beine schwarz."—FINSCH & HARTL. *Vög. Ost-Afr.* p. 213.

HAB. North-east Africa and Senegambia.

THE above description of the adult male is taken from a specimen in the British Museum, and formerly belonging to Mr. Sharpe. It may be readily recognized from the South-African Malachite Sun-bird by the deep copper shades, which are most distinct on the head and neck. It is also slightly smaller in size, a character which Von Heuglin has already remarked as distinguishing the Abyssinian bird from the South-African *N. famosa*. The female does not appear to differ in plumage from that of the South-African form; and as I have not had the opportunity of examining a specimen of that sex, I have quoted the description in full given by Drs. Finsch and Hartlaub of a specimen in the Bremen Museum.

This species ranges throughout the mountainous districts of Abyssinia, and has been recorded from Bogos. Of its occurrence beyond these limits, we are informed by Drs. Finsch and Hartlaub (*Vög. Ost-Afr.* p. 213) that there is an immature male specimen in the Bremen Museum collected at Casamanze by Herr Schneider, which, if the locality be correct, I have no doubt should be referred to the present species.

Von Heuglin (Orn. N.O.-Afr. p. 221) gives the following information respecting this bird:— In North-east Africa it is very limited in range, having only been observed by him during the winter and spring months in the highest ranges of the Central Abyssinian Alps, where the *Erica*, *Echinops*, and the Djibara plant (*Rhynchoptalum montanum*) occur at an elevation of from 10,000 to 14,000 feet above the sea, in the province of Semien, and at Begemedere, on the Guna. He observed it in pairs or small flocks, sometimes in company with *N. tacazze*; and, notwithstanding the cold and the strong winds, they flutter and sing around the few bushes which grow on these dreary and often snow-clad mountain-ranges.

It does not, he remarks, assume its full plumage before May or June, although *N. tacazze* has already done moulting in April; and whether it be a resident throughout the year he is unable to affirm; but I think we need not doubt its being such. According to Brehm (Habesch, p. 211) its occurrence at Mensa may be doubted; but it was found, as we are informed, by Lefebvre at Adowa; and in the province of Semien, according to Rüppell, it is plentiful up to an elevation of 12,000 feet.

NECTARINIA BOCAGII.

(BOCAGE'S SUN-BIRD.)

Nectarinia tacazze, Bocage, Journ. Lisbon, 1878, p. 2 (nec Rüpp.).

♂ *ad.* nigricans, violaceo et chalybeo-viridi nitens, tectricibus alarum minimis dorso concoloribus: medianis nigris chalybeo lavatis: majoribus remigibusque nigris: caudâ nigrâ vix metallicâ: subtus niger, gutture et jugulo metallicè chalybeo-viridibus, plumis paucis aurato nitentibus: subalaribus nigris, remigibus infrâ cinerascanti-brunneis: rostro et pedibus nigris.

Hab. in prov. Angolensi Africæ occidentalis.

Adult Male in partial moult. Black, with the feathers on the upper half of the head, ear-coverts, back and sides of the neck, and the least series of wing-coverts broadly edged with metallic lilac, slightly glossed with blue, green, and copper; feathers of the back, scapulars, and upper tail-coverts broadly edged with metallic bluish-green, glossed with lilac; median series of wing-coverts narrowly edged with the same metallic colours as the back; remainder of the wings brownish black, with a green gloss; the tail has a greenish gloss, and the feathers are narrowly and indistinctly edged with violet-bronze; chin black; entire throat metallic bluish green, with a faint lilac gloss; under surface of the wings dark brown, with the coverts black; bill and legs black; irides dark brown. Total length 8·1 inches, culmen 0·9, wing 3·05, tail 4·2, tarsus 0·7.

HAB. Angola.

THE present species agrees with *N. tacazze* in form and size, but may be readily distinguished from that bird by the bluish-green colouring of the back, upper tail-coverts, and throat.

The specimen before me is in apparently imperfect plumage; yet the colouring as well as the texture of the feathers show no signs of immaturity, so that I feel no doubt as to its being an adult male; but the plumage appears so very imperfect that I have only specially mentioned those characters for distinguishing it from *N. tacazze* which I think must remain more or less constant: these, however, are quite sufficient to prove that it is not merely *N. tacazze* in moult, but an undoubtedly distinct species, which I have no hesitation in naming after my much esteemed friend Professor Barboza du Bocage, to whom I am indebted for the loan of so many interesting specimens.

The type, which is now in the Lisbon Museum, has been here figured in company with *N. cupreonitens*.



NECTARINIA TACAZZE.

(TAKAZZE SUN-BIRD.)

Certhia tacazze, Stanley in Salt's Trav. Abyss. App. p. 58 (1814).

Splendid Creeper, Lath. Gen. Hist. iv. p. 226. no. 15 (1822).

Cinnyris tacazze, Rüpp. Neue Wirb. p. 89, pl. 31. fig. 3 (1835); Lefebvre, Voy. Abyss. Zool. p. 88 (1845-50).

Nectarinia tacazze, Rüpp. Syst. Uebers. p. 28. no. 108 (1845); Bp. Consp. Av. i. p. 405. no. 7 (1850); Müll. J. f. O. 1855, p. 15. no. 158; Heugl. Syst. Uebers. N.O.-Afr. p. 20. no. 152 (1856); id. J. f. O. 1861, p. 191; Rüpp. J. f. O. 1862, p. 292; Heugl. J. f. O. 1864, p. 262; Gray, Hand-l. B. i. p. 108. no. 1329; Blanford, Geol. & Zool. Abyss. p. 352. no. 111 (1870).

Aidemonia tacazze, Reichb. Handb. Scansoriae, p. 284, pl. 3871. fig. 3896 (1854).

Æthopyga tacazze, Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 735. no. 1073 (1856-58).

Nectarinia tacaziena, Heugl. Orn. N.O.-Afr. p. 222 (1871); Sharpe, Cat. Afr. B. p. 37. no. 343 (1871).

Nectarinia tacazziana, Finsch, Tr. Z. S. vii. p. 227 (1872).

Aidemonia tacazziana, Antinori & Salvad. Ann. Mus. Civic. Genov. iv. p. 89 (1873).

♂ *ad.* corpore suprà cum tectricibus alarum minimis et medianis et pectore metallicè lilacinis, capite summo guttureque cuprescentibus: corpore reliquo nigro: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* suprà olivascenti-brunnea, lineâ superciliari latâ albicante: remigibus saturatè brunneis, extùs pallidiùs limbatis: rectricibus nigris, externis latè albo terminatis: subtùs fulvescens, gutture imo et corporis lateribus olivascenti-brunneo lavatis, pectore medio flavo adumbrato.

♂ *juv.* similis feminæ adultæ, sed tectricibus alarum minimis, supracaudalibus et gutture medio metallicis.

Hab. in Abyssiniâ et in terrâ "Bogos" dictâ.

Adult Male. Entire head and neck copper-colour, shot with green and lilac according to the light, and changing gradually into rich metallic lilac on the back, scapulars, least and median series of wing-coverts, upper tail-coverts, and front of the chest; remainder of the plumage black; the greater wing-coverts and the under tail-coverts partially edged with metallic violet; the tail-feathers glossed at their edges with deep metallic green; bill and legs black; irides dark brown. Total length 8·5 inches, culmen 1·15, wing 3·1, tail 4, tarsus 0·75.

Adult Female. Upper parts brownish olive; sides of the head darker, with a broad white eyebrow, and a black patch in front of the eye; wings dark brown with pale edges to the feathers, lighter and inclining to olive on the quills; tail blackish brown, most of the feathers with white tips, broadest on the outer ones; underparts buff, palest on the upper throat and the cheeks, and tinted with olive down the lower throat, sides of the breast, and thighs, and with yellow towards the middle of the breast; under surface of the wings brown, with the inner margins of the quills and the coverts nearly white; bill and legs black; irides dark brown. Total length 6 inches, culmen 1·1, wing 2·75, tail 2·2, tarsus 0·75.

Male in moult. Similar in plumage to the adult female, but with the metallic portions beginning to show on the lesser wing- and tail-coverts and down the centre of the throat.

HAB. Abyssinia and Bogos Land.

THIS fine Sun-bird is readily distinguished from the other members of the genus *Nectarinia*, which have the two central tail-feathers considerably elongated, by the violet and coppery lustre of its plumage.

It inhabits North-eastern Africa, especially affecting the more mountainous districts. Mr. Salt, who first discovered it in Abyssinia, only met with it in the low hot valleys, while Rüppell records it from the Taranta Mountains at an elevation of 8300 feet. According to Von Heuglin, our best authority upon the birds of N.E. Africa (Orn. N.O.-Afr. p. 222), it is resident throughout the eastern, central, and southern portions of Abyssinia, where it was observed by Rüppell and himself, more frequently in the mountains than in the low lands, living mostly in pairs or family parties, and seeking its food amongst the flowering plants and trees. It is not shy in its habits; and it remains very constantly in the same locality until the shrubs have done flowering, when it becomes partially migratory in search of districts where blossoms are more abundant; for its food consists of small beetles and flies which infest the flowers. At Semien and Begemedere (Guna) he met with it at elevations above 13,000 feet.

According to his observations the fresh breeding-plumage is assumed in March and April; but the male at no time loses its metallic colours; and he remarks that he has met with it at all seasons, excepting during the autumn months, when he was never in a locality frequented by this species. This statement appears to me to differ from that made by Mr. Blanford (Geol. & Zool. Abyss. p. 352), where he observes:—"The non-breeding plumage is dull; it is only in the breeding-season that the males acquire their rich purple colour." If we argue from the seasonal changes of plumage usually gone through by members of this family, it would appear that Mr. Blanford's observations are the most correct; for I understand by his calling the non-breeding plumage dull, that this bird assumes a distinct winter dress, as its near ally *N. famosa* most certainly does; yet we should not forget that Von Heuglin's statements are those of an able ornithologist, who has had long personal experience in the facts he records.

According to Mr. Blanford (*l. c.*), "this fine *Nectarinia* ranges to a much higher elevation than the other species. It was common about Senafé and Adigrat, and was still abundant at 10,000 feet on the Wanday pass. In May they were apparently breeding about Senafé. It was very difficult to find the females, which were probably occupied in incubation." Mr. Jesse (Tr. Z. S. vii. p. 227) found it only at Rayrayguddy, on the 8th of April, and at Goongoona, Facado, and Senafé in May. Dr. Beccari met with it at Keren in May; and it is, as Antinori and Salvadori remark, undoubtedly rare in Bogos.

The present species was originally named *Certhia tacazze*, after the river Takazze, a tributary of the Atbara, where Salt first discovered it. I have adhered to the original spelling in preference to such names as *Nectarinia tacaziena*, Heuglin, or *N. tacazziana*, Finsch, which have been proposed as more classical, as I do not consider that we gain any advantage by making such alterations—if indeed we have the right to do so in any case, excepting where the name has been wrongly spelt by a misprint or error in the publication.



ANTHROBAPHES VIOLACEA.

(SOUTH-AFRICAN WEDGE-TAILED SUN-BIRD.)

- Certhia violacea*, Linn. S. N. i. p. 188. no. 22 (1766); P. L. S. Müll. S. N. ii. p. 260. no. 22 (1773); id. op. cit. Anhang, p. 97. no. 27 (1776); Gm. S. N. i. p. 482 (1788); Lath. Ind. Orn. i. p. 288. no. 21 (1790); Shaw, Gen. Zool. viii. p. 211, pl. 20 (1811); Bechst. Kurze Uebers. p. 182 (1812).
- Petit Grimpereau à longue queue du Cap de Bonne Espérance*, Buff. Pl. Enl. 670. fig. 2 (1770-86).
- Soui-manga à longue queue et capuchon violet*, Buff. Hist. Ois. v. p. 517 (1778).
- Violet-headed Creeper*, Lath. Gen. Syn. B. ii. p. 718. no. 19 (1781); id. Gen. Hist. B. iv. p. 213. no. 3 (1822).
- ? *Cinereous Creeper*, Lath. Gen. Syn. B. ii. p. 723. no. 22 (1781).
- ? *Orange-breasted Creeper*, Lath. tom. cit. p. 734. no. 38; id. Gen. Hist. B. iv. p. 264. no. 70 (1822).
- ? *Certhia aurantia*, Gm. S. N. i. p. 472. no. 35 (ex Orange-breasted Creeper of Lath. 1788); Lath. Ind. Orn. i. p. 295. no. 47 (1790); Bechst. Kurze Uebers. p. 186. no. 48 (1812); Walden, Ibis, 1870, p. 43.
- ? *Certhia cinerea*, Gm. S. N. i. p. 481. no. 52 (ex Cinereous Creeper of Lath. 1788); Lath. Ind. Orn. i. p. 289. no. 25 (1790); Bechst. Kurze Uebers. p. 182. no. 25 (1812).
- Certhia crocata*, Shaw & Nodd. Vivar. Nat. vi. pl. 210.
- Le Soui-manga à capuchon violet*, Aud. et Vieill. Ois. Dor. ii. p. 61, pl. 39 (1802).
- ? *Le Soui-manga orangé*, Aud. et Vieill. tom. cit. p. 64 (ex Gm. no. 35).
- Le Sucrier orangé*, Levaill. Ois. d'Afr. vi. p. 152, pl. 292. figs. 1, 2 (1808); Sundev. Crit. om Levaill. p. 56 (1857).
- Nectarinia violacea*, Illig. Prodr. Syst. Mamm. et Av. p. 210 (1811); Licht. Verz. Doubl. p. 15 (1823); Jard. Monogr. Sun-birds, pp. 200, 258, pl. 16 (1843); Gray, Gen. B. i. p. 98 (1847); Blyth, Cat. B. Mus. A. S. B. p. 223. no. 1350 (1849); Bp. Consp. Av. i. p. 404. no. 3 (1850); Müll. J. f. O. 1855, p. 15. no. 160; Grill, Zool. Anteckn. pp. 10, 39 (1858); Pelzeln, Reise Novara, Vög. p. 51 (1865); Layard, B. S. Afr. p. 78. no. 130 (1867); Finsch & Hartl. Vög. Ost-Afr. p. 213. no. 94 (1870); Sharpe, Cat. Afr. B. p. 37. no. 344 (1871).
- Cinnyris violaceus*, Cuv. Règn. Anim. i. p. 412 (1817); Vieill. Enc. Méth. ii. p. 598 (1823); Less. Man. d'Orn. ii. p. 27 (1828); id. Traité d'Orn. i. p. 293. no. 4 (1831).
- ? *Cinnyris cinereus*, Vieill. N. Dict. d'Hist. Nat. xxxi. p. 498 (ex Cinereous Creeper of Lath. 1819); id. Enc. Méth. ii. p. 585 (1823).
- Cinnyris violaceofrons*, Bonn. et Vieill. Enc. Méth. ii. p. 600 (1823).
- Cinnyris croceus*, Less. Traité d'Orn. i. p. 294. no. 8 (ex Levaill. pl. 292. fig. 2, 1831).
- Anthrobaphes violacea*, Cab. Mus. Hein. i. p. 103. no. 565 (1850); Reichb. Handb. Scansoriæ,

p. 298. no. 698, pl. 582. figs. 3954–56 (1854); Gurney in Andersson's *B. Damara Land*, p. 74 (1872).

Promerops violacea, Gray, *Hand-l. B. i.* p. 110. no. 1353 (1869).

♂ *ad.* capite, collo, interscapulio et tectricibus alarum minimis saturatè metallicè viridibus violaceo nitentibus: dorso postico et supracaudalibus olivascenti-flavis, his vix metallicè lilacino apicatis: remigibus rectricibusque saturatè brunneis, olivascenti-flavo limbatis: gutture et præpectore saturatè metallicè viridibus, jugulo lilascenti-chalybeo nitente: subtùs flavicans, pectore summo et subcaudalibus aurantiaco-rubro lavatis: hypochondriis tibiisque olivascenti-flavis: fasciis pectoralibus lætè flavis: rostro pedibusque nigris: iride saturatè brunneâ.

♀ *ad.* suprâ olivacea, uropygio et supracaudalibus flavo lavatis: remigibus et rectricibus saturatè brunneis extùs olivascenti-flavo limbatis: subtùs dilutior, cinerascendi-olivacea, pectore medialiter flavo lavato, et subcaudalibus flavicantibus.

Hab. in Africâ meridionali.

Adult Male. Head, neck, uppermost portion of the back, and the least series of wing-coverts deep metallic green, here and there with lilac reflexions; remainder of the back and the upper tail-coverts olive-yellow, the latter occasionally partially tipped with metallic lilac; remainder of the wing and tail-feathers dark brown, edged with olive-yellow; front of the neck deep metallic green, changing into lilac, shaded steel-blue on the lower half of the throat; undersurface of the body yellow, strongly washed with orange-red on the front of the chest and on the tail-coverts, and shading into olive-yellow on the flanks and thighs; pectoral tufts bright yellow; bill and legs black; irides dark brown. Total length 6·5 inches, culmen 0·9, wing 2·3, tail 3·3, tarsus 0·7.

Adult Female. Upper parts olive, shaded with yellow on the lower back and upper tail-coverts; wings and tail dark brown, the feathers edged with olive-yellow; underparts paler and more ashy olive, washed with yellow down the centre of the breast and on the under tail-coverts; undersurface of the wings brown, with the inner margins of the quills and the coverts almost white, the latter tinted with sulphur-yellow; bill and legs black; irides dark brown. Total length 5 inches, culmen 0·85, wing 2, tail 2, tarsus 0·65.

HAB. South Africa.

THE South-African Wedge-tailed Sun-bird forms, I consider, the connecting link between the African genus *Nectarinia* and the oriental *Æthopyga*: to the former it is allied in the shape and length of its bill, and in not possessing the loose downy feathers on the middle of the back which are so characteristic of the genus *Æthopyga*, while to the latter it shows its affinities in the form of its tail. This last character, together with the metallic colouring of the least series of wing-coverts and the orange-yellow breast, distinguish it from all the other members of the family.

It lives in the wild mountainous parts of South Africa, from the Cape of Good Hope eastward to Cape Delgado. On the west coast it ranges into Little Namaqua Land; and if Mr. Layard is correct in the locality he assigns to Mr. Chapman's specimens, it is found in the interior as far north as the Lake Ngami district. We have, however, never seen a specimen from so far inland, and doubt the identification.

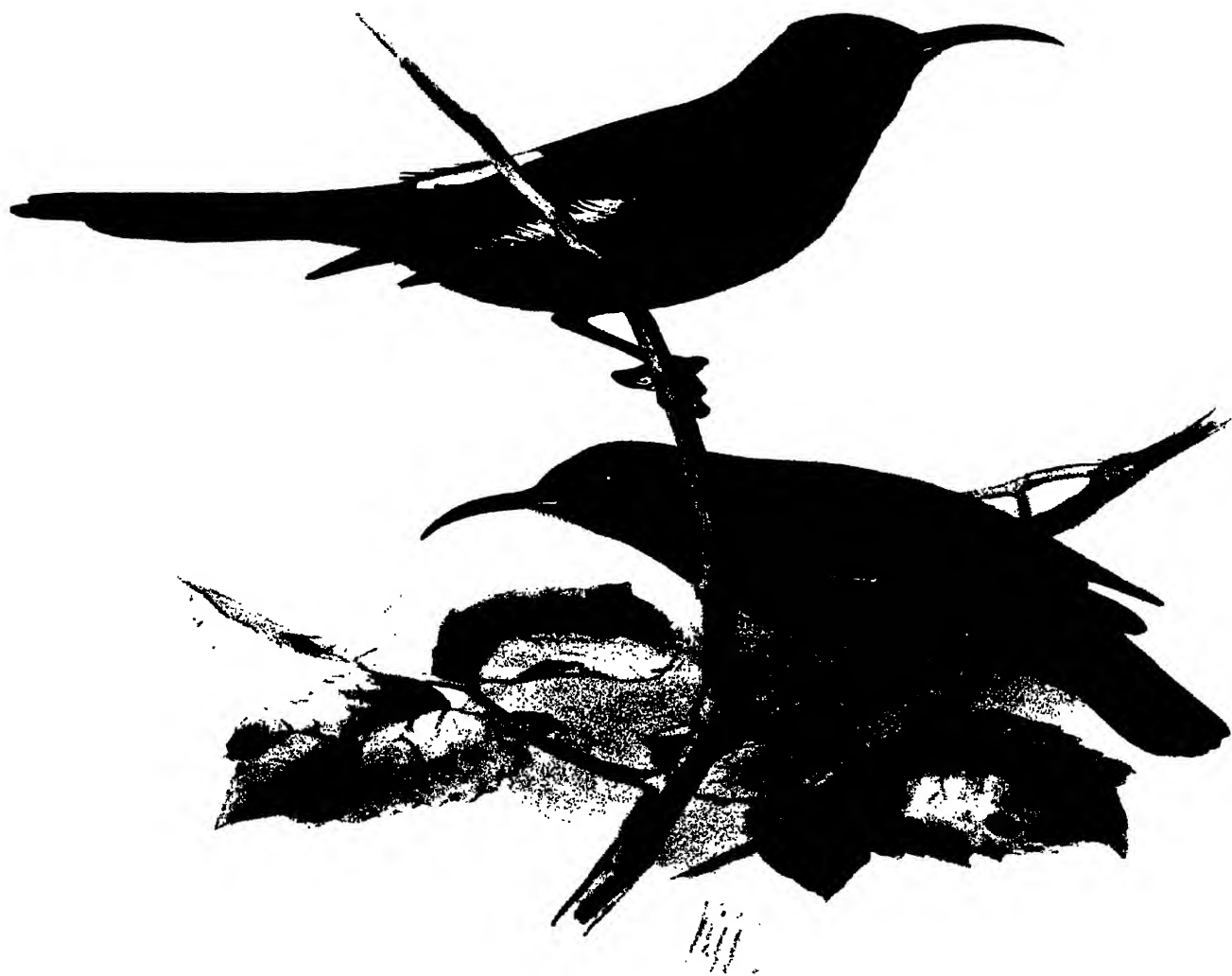
With regard to its range in South-western Africa, I cannot do better than quote from Mr. Andersson's valuable work on the birds of Damara Land (p. 74):—"I have found this species pretty abundant in Little Namaqua Land; but to the best of my knowledge it is not an inhabitant of Great Namaqua or Damara Land, though Mr. Layard informs me that Mr. Chapman brought specimens from the Lake-country. It is found singly and in pairs, often also in flocks, frequenting the slopes of hills and mountains, whence it descends to the lower grounds, but only during the flowering-season of the garden plants and trees, amongst which it is especially fond of the sweet-scented orange-blossom. With the exception of such excursions, it is not migratory. The male bird has a brisk pleasant song."

Levaillant gives a very similar account of its habits as observed by him at the Cape of Good Hope, and also remarks:—"Le mâle a un gazouillement précipité des plus vifs et des plus agréables."

Mr. Layard (B. of S. Afr. p. 78) writes:—"This Sun-bird appears to affect wild uncultivated country and mountains more than the other species; indeed I never observed it near habitations. It is plentiful on the top and about the sides of Table Mountain. At the Knysna I found it in abundance among the uncultivated hill-sides, away from the timber. I saw a pair building a pendent, domed nest, with a projecting portico over the entrance, at Cape Delgado, on the east coast of Africa. The nest was hung at the extreme end of a drooping branch of a *Casuarina*, close to the sea-beach; not far off was the nest of *N. gutturalis*."

During the rainy season the male loses its bright colours and assumes a plumage almost identical with that of the female.

A very fine specimen in my collection, from which the accompanying illustration of the male is taken, has a few of the upper tail-coverts broadly tipped with metallic lilac, a character which I have not observed in any other individual that I have examined.



ÆTHOPYGA EXIMIA.

(KUIHL'S YELLOW-BACKED SUN-BIRD.)

Nectarinia eximia, Horsf. Trans. Linn. Soc. xiii, p. 168 (1820); Jard. Monogr. Sun-birds, p. 268 (1842); Gray, Gen. B. i, p. 98 (1847); Bp. Consp. Av. i, p. 405, no. 16 (1850).

Nectarinia kuhlii, Temm. Pl. Col. pl. 376, figs. 1, 2 (1825); S. Müll. & Schl. Verhand. Zool. Aves, p. 56 (1846); Schl. Handb. Dierk. p. 256 (1857).

Cinnyris kuhlii, Less. Man. d'Orn. ii, p. 36 (1828).

Cinnyris eximia, Vig. Mem. Raffles, p. 673 (1830).

Æthopyga eximia, Cab. Mus. Hein. i, p. 103 (1850); Reichb. Handb. Scansoriæ, p. 303, no. 709, pl. 587, figs. 3984-85 (1854); Bp. Comptes Rendus, xxxix, p. 265 (1854); Horsf. & Moore, Cat. B. E.I. Co. Mus. ii, p. 736 (1856); Walden, Ibis, 1870, p. 37.

Anthreptes eximia, Licht. Nomencl. Av. p. 56 (1854).

Promerops eximia, Gray, Hand-l. B. i, p. 109, no. 1340 (1869).

♂ *ad.* suprâ olivascenti-flavus: fronte et vertice, supracaudalibus et rectricum nigrarum marginibus latis metallicè viridibus: uropygio lætè flavo: gutture toto et pectore rubris: fasciâ jugulari transversâ Λ -formi metallicè violaceâ: corpore reliquo subtùs sordidè olivascete: subalaribus et corporis lateribus albis.

♀ *ad.* olivascenti-flava, capite magis sordidiore, viridescete: gulâ cinerascete: corporis lateribus albis.

Hab. in insulâ "Java" dictâ.

Adult Male. Upper parts, as well as the sides of the head and neck, olive-yellow; forehead and crown metallic green; in front of the eyes a triangular patch of black feathers; wings dark brown, with the least and median series of coverts and broad margins to the other feathers olive-yellow; lower back bright yellow; upper tail-coverts metallic green; tail black, with the basal half of the centre feathers and the margins of the others metallic green; chin, throat, and front of the chest red; the middle of the throat traversed by a metallic lilac band forming an angle directed upwards; a broad, dusky olive band down the centre of the breast; thighs and under tail-coverts the same colour, but rather paler; sides of the body white; under surface of the wings dark brown, with the inner margins of the quills and the coverts white; bill, upper mandible dark brown, lower one paler brown; irides and legs dark brown. Total length 5.2 inches, culmen 0.8, wing 2.3, tail 2.1, tarsus 0.6.

Adult Female. Olive-yellow; quills and tail-feathers dark brown, broadly edged with olive-yellow, the latter having broad pale ends, barely perceptible, excepting from beneath; chin and upper half of the throat inclining to ashy grey; sides of the body white. Total length 4.3 inches, culmen 0.7, wing 2.15, tail 1.7, tarsus 0.65.

HAB. Java.

THE following characters will readily distinguish this well-marked species. It has no metallic moustachial stripe; the throat is red, traversed about halfway down by a Λ -shaped bar of

metallic violet, the angle of which points upwards. In both sexes the flanks are white, and contrast strongly with the centre of the body, which in the male is dusky olive, and in the female bright olive-yellow.

It is only known to inhabit the island of Java, where, according to Dr. Horsfield, the native name is "Plichi Kembang." Some five years after Dr. Horsfield's original description, it was renamed after Kuhl, a young Dutch naturalist of great promise, whose sad fate in the cause of science justly entitled him to the warm sympathies expressed by Temminck in the 'Planches Coloriées.'

Müller and Schlegel give an interesting account of this species. It is distributed over the highest mountain regions of the island, where it is found at elevations of from 8000 to 9000 feet above the sea-level. Here it frequents the bushes which grow in the clefts of the lava-streams of these volcanic ranges, and breeds in the high elevations during the dry season in May and June. It feeds around the flowering-plants upon insects and their larvæ, and occasionally upon small berries, and during the cooler months descends into the valleys, and may then be seen flitting about the coffee-plantations and native gardens.

The specimens here figured and described are a male collected by Mr. Wallace, belonging to the Marquis of Tweeddale, and a female in my own collection.

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ETHOPYGA NIPALENSIS.

(NEPAL YELLOW-BACKED SUN-BIRD.)

Cinnyris nipalensis, Hodgs. Ind. Rev. ii. p. 273 (1837); Blyth, J. A. S. B. xi. p. 192. no. 51 (1842); Hodgs. in Gray's Zool. Misc. 1844, p. 82.

Nectarinia nipalensis, Jard. Monogr. Sun-birds, pp. 236, 268, pl. 27 (1842); Blyth, J. A. S. B. xii. p. 974 (1843); Gray, Gen. B. i. p. 98 (1847); Blyth, Cat. B. Mus. A. S. B. p. 224. no. 1355 (1849); Gould, B. Asia, part 2, pl. 27 (1850); Bp. Consp. Av. i. p. 405. no. 12 (1850).

Ethopyga nipalensis, Cab. Mus. Hein. i. p. 103. no. 564 (1850); Reichb. Handb. Scansorie, p. 302. no. 706, pl. 585. figs. 3976-78 (1854); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 785. no. 1070 (1856); Jerd. B. Ind. i. p. 366 (1862); Beavan, Ibis, 1865, p. 414; Bulger, Ibis, 1869, p. 159; Walden, Ibis, 1870, p. 35. no. 21; Jerd. Ibis, 1872, p. 17; Hume, Nests & Eggs Ind. B. p. 147 (1873).

Promerops nipalensis, Gray, Hand-l. B. i. p. 109. no. 1341 (1869).

♂ *ad.* pileo et collo posticis et gutture toto saturatè metallicè viridibus, capite laterali et colli lateribus nigris violaceo nitentibus: interscapulio et scapularibus summis rubris: scapularibus reliquis, tectricibus alarum et remigibus extùs olivaceis: uropygio flavo: supracaudalibus, rectricibus duabus centralibus et reliquarum marginibus metallicè viridibus: rectricibus aliter nigris versùs apicem brunnescentibus: corpore reliquo subtùs lætissimè flavo, pectore scarlatino notato: subcaudalibus olivascensibus: rostro nigro: pedibus saturatè brunneis: iride saturatè brunneâ.

♀ *suprà* olivascens-flava, tectricibus alarum minimis et medianis dorso concoloribus: pileo uenchâque vix cinerascens: dorso postico pallidior flavicante: alâ reliquâ saturatè brunneâ, tectricibus majoribus olivascens-flavo, remigibus brunnescenti-flavo marginatis: rectricibus brunnescenti-nigris, duabus mediis olivascens-flavo lavatis, reliquis basaliter hoc colore lavatis, apicaliter pallidioribus, intùs ad apicem albidis: capite laterali pallidior et quam pileus cinerascens: gulâ cinerascens vix olivaceo tinctâ: pectore, abdomine et tibiis olivascens-flavis, hypochondriis stramineis: subcaudalibus saturatè flavis: alâ subtùs saturatè brunneâ, subalaribus et remigibus intùs albis: rostro nigro: pedibus et iride nigris.

Hab. in montibus Himalayensibus.

Adult Male. Upper half of the head and back of the neck deep metallic green, narrowly margined on the back with black; upper back, lower portion of the sides of the neck, and part of the scapulars deep red; remainder of the scapulars and broad margins to all the wing-feathers olive-yellow; remainder of the wings blackish brown; lower back gamboge-yellow; upper tail-coverts deep metallic green; tail black with the basal three quarters of the two centre feathers and the edges of the others deep metallic green, and all but the two centre feathers with broad pale ends; sides of the head and the greater portion of the sides of the neck black, glossed with violet; chin and throat deep metallic green; under surface of the body and the under tail-coverts gamboge-yellow, with the feathers of the chest strongly

mottled with scarlet; abdomen shaded with olive, and the thighs with dusky brown; under surface of the wings dark brown with the inner margins of the quills and the coverts white; bill black; irides and legs dark brown. Total length 5·1 inches, culmen 0·75, wing 2·2, tail 2·8, tarsus 0·6.

Adult Female. Upper parts olive-yellow, including the least and median series of wing-coverts; the forehead, crown, and back of the neck of a more ashy brown shade; the lower back slightly paler and yellower; remainder of the wings dark brown, the greater series of coverts broadly edged with olive-yellow, and the quills with brownish yellow; tail brownish black, the two centre feathers strongly washed with olive-yellow, and the others with their basal portions edged with that colour, and with broad, pale ends, becoming white on the inner webs; sides of the head rather paler and more ashy than the crown; chin and throat ashy grey, very slightly tinted with olive; breast, abdomen, and thighs pale olive-yellow; sides of the body straw-colour; under tail-coverts deep yellow; under surface of the wings dark brown, with the inner margins of the quills and the coverts white; bill black; legs and irides dark brown. Total length 4·3 inches, culmen 0·7, wing 1·85, tail 1·75, tarsus 0·6.

HAB. Eastern Nepal, Sikkim, and Bhootan, to the Khasia hills.

THE Nepal Yellow-backed Sun-bird may be easily distinguished from other *Ethopyga* by the crown, back of the neck, and the throat being rich metallic green, and the mantle red: the latter character separates it from the nearly allied *E. horsfieldi*.

In distinguishing the females from those of the other Himalayan *Ethopyga*, with the exception of *E. horsfieldi*, of which we, as yet, know only the male, the following characters prove of service:—From *E. ignicauda* it is to be recognized by its smaller size, narrower and more curved bill, and by the white tips to the tail-feathers, the latter character also distinguishing it from *E. miles*. From *E. saturata* and *E. gouldiae* it is separated by the colouring of the lower back, which in those two species is crossed by a tolerably distinct yellow band.

Messrs. Hume and Davison write in their notes to me:—"This species is excessively common, in fact the commonest of all the *Ethopyga* in Sikkim, and is not uncommon in the eastern half of Nepal; but it does not, to our knowledge, extend westward into Kumaon; at least we never obtained it there, nor have we seen it thence; and we doubt even whether it occurs in Nepal west of Gunduck. Eastward it is found in Bhootan, and probably extends into Assam. It is very common in the Khasia hills; but we have not yet obtained it from Hill Tipperah, or from any more southern locality."

At Darjeeling, Dr. Jerdon tells us, it is the most common species of Sun-bird, and often seen in the gardens of the station. Captain Bulger, who also met with it there, writes, "I have frequently seen both male and female amongst the shrubs along the edges of the new cart-roads. They were not at all shy, but allowed me to approach them very closely. In their habits these little creatures reminded me much of the Humming-birds, often feeding in the same way, by probing tubular blossoms while poised on rapidly vibrating wings, the plumage of the males meanwhile glittering and flashing in the sun-light like living gems."

In the Himalayas, to the westward of the Jumna, it is replaced by *E. horsfieldi*, a bird which differs from *E. nipalensis* in the olive colouring of the upper half of the back, a character which Mr. Gould was of opinion only indicated immaturity: but such is certainly not the case; for Mr. Hume writes to me, "No specimen of *E. horsfieldi* has ever been obtained where *E. nipa-*

lensis most abounds. During the last eight years many hundred specimens of this latter species, of both sexes, of all ages, and killed at all seasons of the year, have passed through Mr. Mandelli's hands; yet he has never seen a specimen of *Æ. horsfieldi*."

The characters which separate these two forms, although slight, are constant; and as they are restricted to distinctly different districts, they should, I consider, be looked upon as belonging to two species, and not as mere races of the same form.

Of the breeding of *Æ. nipalensis* Mr. Hume gives us a good account (Nests & Eggs Ind. B. p. 147) taken from Mr. Hodgson's notes and drawings:—"This species," he writes, "begins to lay in April, and builds a comparatively large, oval, hanging nest (composed of moss and wool, and lined throughout with silky down), which is attached by some leafy twigs at an elevation of from 3 to 5 feet from the ground. These birds, it is said, breed only in Nepal, in the central hill regions, frequenting groves and open forests, in which also their nests are always found. The nest is egg-shaped, 7.75 inches in length by 4 in breadth; and a little above the middle is an oval aperture about 1.62 by 1 inch. There is no portico or projection above this; and whereas in the nest of *Æ. miles* dark-coloured hair-like roots seem to constitute the chief components of the nest, in the present species green moss and white wool fibres seem to predominate."

They lay two to three eggs, which are figured as moderately broad ovals, 0.68 by 0.43 inch. The eggs are represented as nearly white, with a certain amount of reddish mottling towards the larger end. They have only one brood in the year; and both birds participate in rearing the young, which are ready to fly in July.

Dr. Jerdon writes, "I obtained a nest of this bird, very neatly though loosely made of moss, domed at the top, with the entrance at the side, overhung by a sort of projecting roof; it contained two eggs of a dusky greenish tinge, with numerous small dusky spots."

The descriptions and figures of the adult male and female are taken from specimens collected at Darjeeling, in my own collection.

ÆTHOPYGA HORSFIELDI.

.(HORSFIELD'S YELLOW-BACKED SUN-BIRD.)

Cinnyris horsfieldi, Blyth, J. A. S. B. xi. p. 107 (1842).

Nectarinia horsfieldi, Blyth, J. A. S. B. xii. p. 975 (1843); Gray, Gen. B. i. p. 98 (1847); Blyth, J. A. S. B. xvi. p. 472 (1847); id. Cat. B. Mus. A. S. B. p. 224. no. 1356 (1849); Bp. Consp. Av. i. p. 405. no. 13 (1850).

Æthopyga horsfieldii, Reichb. Handb. Scansoriæ, p. 304. no. 712 (1854); Jerd. B. Ind. i. p. 367. no. 230 (1862); Walden, Ibis, 1870, p. 36.

Promerops horsfieldii, Gray, Hand-l. B. i. p. 109. no. 1342 (1869).

♂ similis *Æ. nipalensi*, sed tergo summo olivascente vix rubro tincto, scapularibus et tectricum marginibus schistaccis, remigum marginibus magis cinerascens, uropygio pallidiore flavo, corpore subtus dilutiore, pectore antico vix aurantiaco vario, et præpectore lateraliter albicante diversus.

Hab. in montibus Himalayensibus.

Adult Male. Upper half of the head and back of the neck deep metallic green, narrowly margined on the back with black; upper back olive slightly shaded with rufous; the feathers on the lower portion of the sides of the neck edged with rufous-shaded olive; wings brownish black; scapulars and broad margins to the wing-coverts slate-colour slightly glossed with bronze; the primaries very narrowly and the secondaries more broadly edged with ashy olive; lower back pale yellow, almost white on the sides; upper tail-coverts deep metallic green; tail black with the basal three quarters of the two centre feathers and the edges of the others deep metallic green, and all but the two centre feathers with broad pale ends; sides of the head and the greater portion of the sides of the neck black glossed with violet; chin and throat deep metallic green; under surface of the body and the under tail-coverts pale yellow, with the chest slightly mottled with orange-red and washed with white on the sides of the crop; abdomen paler and washed with ashy olive; thighs ashy brown; under surface of the wings brown, with the inner margins of the quills and the coverts white, the latter shaded with sulphur-yellow; bill black; irides and legs dark brown. Total length 5·1 inches, culmen 0·75, wing 2·15, tail 2·7, tarsus 0·6.

HAB. Gurwal district, in West Central Himalayas.

Æthopyga horsfieldi is very similar in plumage to *Æ. nipalensis*, from which bird, however, the adult male may be readily distinguished by the mantle being olive instead of red.

According to Messrs. Hume and Davison, "this is a very distinct species. The fact is that its area of distribution is excessively limited, and that the habitat usually assigned to it, viz. North-west Himalayas, conveys a very erroneous impression. As a matter of fact, we believe it to be exclusively confined to that small subdivision of the Western Central Himalayas that lies between the Jumna and the Ganges, descending in the cold season into the Dhoon. Hutton's specimen, which he sent to Mr. Blyth, was shot near Mussoorie; and all our specimens, and all we have ever seen, were obtained in the limited locality above indicated.

“On comparing it with *Æ. nipalensis* it is found to differ, first, in the size of the bill. A fine male *Æ. nipalensis* has the bill at front, measured straight from the base of the feathers to the point, 0·9 inch; the finest specimen of *Æ. horsfieldi* has the bill, similarly measured, only 0·76. Secondly, the red on the back is absolutely wanting; only in old males, on the sides of the neck, just where the metallic feathers cease, there is a slight maroon tinge. Thirdly, the rump is much paler yellow. Fourthly, the breast almost entirely wants the fiery orange tinge of *Æ. nipalensis*.

“A wide tract of country, the whole of Kumaon and British Gurwal, in which, as far as I know, neither species occurs (though *Æ. horsfieldi* may straggle into British Gurwal and *Æ. nipalensis* into Kumaon), intervenes between these two species, supposed by Mr. Gould to be identical, and by Dr. Jerdon to interbreed.”

The adult male from which my figure and descriptions are taken is in Mr. Swinhoe's collection. It differs from a specimen in the British Museum in having the sides of the upper back shaded with slate-colour and the wing-coverts and scapulars of a more dusky shade, these parts being olive in the British-Museum specimen; and it also differs in having the sides of the chest washed with white. In both of these specimens there is a shade of red on the feathers edging the metallic back of the neck; and this appears also to have been the case with a specimen examined by Dr. Jerdon in the Museum of the Asiatic Society, Calcutta. This red shade on some of the feathers of the upper back is, according to Messrs. Hume and Davison, entirely absent in all their specimens. It may indicate age; but I cannot agree with Dr. Jerdon that it may probably interbreed with *Æ. nipalensis* where they meet. Mr. Swinhoe's specimen, as well as the specimen in the British Museum above referred to, is labelled “Nepal;” but I think there need be little doubt that the locality there indicated is an error.

It is a far rarer species than *Æ. nipalensis*, and as yet we have no information regarding its habits; but from its natural affinities we may assume that, like the other *Æthopygæ*, it frequents mountainous districts of moderate elevation, and is to be found among the scattered clumps of trees rather than in the dense forests.

The lower figure in the illustration represents this bird.



ÆTHOPYGA SATURATA.

ÆTHOPYGA SATURATA.

(BLACK-BREASTED YELLOW-BACKED SUN-BIRD.)

Cinnyris saturatus, Hodgs. Ind. Rev. ii. p. 273 (1837); Blyth, J. A. S. B. xi. p. 192 (1842); Hodgs. in Gray's Zool. Misc. 1844, p. 82.

Cinnyris assamensis, McClelland, P. Z. S. 1839, p. 167.

Nectarinia hodgsonis, Jard. Monogr. Sun-birds, pp. 240, 269, pl. 28 (1842).

Nectarinia hodgsoni, Gray, Cat. Mamm. & Birds, Nepal, p. 59 (1846); id. Gen. B. i. p. 98 (1847).

Nectarinia saturata, Hodgs. J. A. S. B. xii. p. 976 (1843); Blyth, Ann. & Mag. Nat. Hist. xx. p. 316 (1847); id. Cat. B. Mus. A. S. B. p. 224. no. 1359 (1849); Bp. Consp. Av. i. p. 405. no. 14 (1850); Gould, B. Asia, part 19 (1867).

Æthopyga saturata, Cab. Mus. Hein. i. p. 103, note (1850); Reichb. Handb. Scansoriæ, p. 304. no. 710, pl. 587. fig. 3986 (1854); Horsf. & Moore, Cat. B. E.I. Co. ii. p. 735. no. 1071 (1856); Jerd. B. Ind. i. p. 367 (1862); Beavan, Ibis, 1865, p. 414; Bulger, Ibis, 1869, p. 159; Walden, Ibis, 1870, p. 36; Jerd. Ibis, 1872, p. 17; Hume, Nests & Eggs Ind. B. p. 147 (1873).

Promerops saturata, Gray, Hand-l. B. i. p. 110. no. 1345 (1869).

♂ *ad.* pileo summo, collo postico, uropygio et supracaudalibus chalybeis: capitis collique lateribus nigris: interscapulis saturatè rubro, ut et plumis colli lateralis quibusdam marginaliter rubris: alis brunnescenti-nigris, remigibus vix olivaceo limbatis: dorso postico nigro, vittâ uropygiali flavâ: caudâ nigrâ, rectricibus centralibus plerumque chalybeis, reliquis chalybeo marginatis: mento, gutture et præpectore nigris, vittâ mystacali chalybeâ infra dilatatâ et fere torquem jugularem formante: abdomine, hypochondriis et subcaudalibus flavis: axillaribus albis.

♀ *ad.* suprâ olivascenti-flava, tectricibus minimis et medianis dorso concoloribus: alâ reliquâ caudâque saturatè brunneis, pennis olivaceo limbatis, rectricibus externis pallidiùs terminatis: vittâ uropygiali latâ pallidè flavâ: subtùs pallidè olivascenti-flava, hypochondriis albicantibus: axillaribus albis.

Hab. in montibus Himalayanis et in terrâ Assamicâ.

Adult Male. Forehead, crown, and back of the neck violet-shaded steel-blue; sides of the head and neck black, the latter with a few of the feathers towards the base margined with very dark red; upper back and the greater portion of the scapulars very dark red; wing-coverts and the ends of the scapulars black; quills dark brown, faintly edged with olive-brown; middle of the back black, with a narrow pale yellow band across the lower part; the lower rump and the upper tail-coverts steel-blue like the crown; tail black with the basal three quarters of the centre feathers and the margins of the others violet-shaded steel-blue; chin, throat, chest, and the centre of the upper portion of the abdomen black; a metallic violet-shaded steel-blue band extends from the sides of the chin down the full length of the neck, widening out and almost joining on the lower throat; sides of the lower breast, the abdomen, and the under tail-coverts olive-yellow, fading into white on the axillaries; under surface of the wings dark

brown with pale inner margins to the quills; under wing-coverts white; bill black; irides and legs dark brown. Total length 6·1 inches, culmen 0·8, wing 2·15, tail 3·3, tarsus 0·6.

Adult Female. Upper parts olive-green with the centres of the feathers of the crown browner; a broad, very pale yellow band across the lower back; wings dark brown, with the least and median series of coverts olive, and the other feathers broadly margined with olive-yellow; tail dark brown, the feathers broadly edged with olive-yellow, and with whitish ends to some of the outer ones; underparts pale olive-yellow, fading into yellowish white on the sides of the breast, and into pure white on the axillaries; under surface of the wings brown with the inner margins of the quills and the coverts white, the latter tinted with yellow; bill dark brown, paler towards the base of the lower mandible; irides and legs dark brown. Total length 3·8 inches, culmen 0·75, wing 1·8, tail 1·3, tarsus 0·55.

HAB. Himalaya Mountains from Mussoorie eastward through Nepal, Sikkim, and Bhootan, into Assam, and southward to the Khasia hills.

Æ. saturata may be at once distinguished by the male having the back of the neck metallic blue like the crown, and the entire chest black. The female of this species, as well as that of *Æ. sanguinpectus*, differs from the other known Sun-birds in having a pale yellowish band across the lower back.

This species inhabits North-eastern India, and is very plentiful in the South-eastern Himalayas, Nepal, Sikkim, and also in Assam. It frequents the mountainous districts, usually at elevations of from 3000 to 5000 feet above the sea-level; and it has even been met with by Captain Elwes near Tonglo, in Sikkim, at an elevation of 9000 feet. But, as Mr. Gould says, it "appears to prefer regions of an equable temperature; for it neither ascends to the bleak elevations of the ranges, nor descends to the heated forests of the Terai, which skirt the vast chain of the Himalayas."

According to the notes sent to me by Messrs. Hume and Davison "this species is probably scarcely less common in Sikkim than *Æ. nipalensis*. Westward it occurs throughout Nepal, also, though sparingly, in Kumaon and British Gurwal, and as a rare straggler in Native Gurwal and the neighbourhood of Mussoorie. It never, to the best of our belief, occurs westward of the valley of the Jumna. Eastward it is common in Bhootan, and extends, as far as we know, into Assam; but its eastern limits have yet to be defined. It is common about Shillong; but we have not yet obtained it south of the Khasia hills."

Although it is a common and well-marked species, very little has been recorded of its habits. Mr. Hume (Nests & Eggs Ind. B. p. 147) writes:—"According to Mr. Hodgson's notes and drawings it builds a beautiful pear-shaped hanging nest, about 6·5 inches in length by 3 in breadth at the broadest part. The nest is hung at the end of a slender thorny twig, and is composed of moss, bound together with little strips of bark and vegetable fibre, and is lined with the soft down or *pappus* of some asteraceous plant. The entrance is almost immediately below the point of suspension, and is secured by an awning, which projects about an inch, and hides more than half the entrance-hole. They begin to lay, it appears, in April, two or three being the number of the eggs, which, however, are neither described nor figured. Like the rest of this genus it breeds only once in the year."

The specimens which I have here figured and described came from Darjeeling. The female is in Mr. Hume's collection.



ÆTHOPYGA SANGUINIPECTUS.

• (BURMESE YELLOW-BACKED SUN-BIRD.)

Æthopyga sanguinipectus, Walden, Ann. & Mag. Nat. Hist. 1875, p. 400; Hume, Str. F. 1875, p. 402.

Æthopyga waldeni, Hume, Str. F. 1877, p. 51.

♂ *ad.* similis *Æ. saturatæ*, sed colli lateribus omninò rubris interscapulis concoloribus, vittâ flavâ uropygiali latiore, gutture toto metallicè violaceo, mento medialiter tantùm nigro, vittâ jugulari latâ nigrâ ad latera præpectoris decurrente, præpectore pallidè flavo distinctè scarlatino notato, corpore reliquo subtùs flavo pallidiore quam in *Æ. saturatâ* diversus.

♀ *ad.* similis *Æ. saturatæ* ♀, sed minùs flavescens, et pileo colloque posticis gulâque cinerascenti adumbratis.

Hab. in terrâ Burmanensi.

Adult Male. Forehead, crown, and back of the neck violet-shaded steel-blue; sides of the head black; upper back, sides of the neck, and greater portion of the scapulars very dark red; wing-coverts and ends of the scapulars black; quills dark brown faintly edged with olive; lower back crossed by a narrow pale-yellow band; lowest portion of the back and the upper tail-coverts steel-blue like the crown; tail black, with the basal three quarters of the centre feathers and the margins of the others violet-shaded steel-blue; centre of the chin black; entire throat and sides of the chin lilac-shaded steel-blue; a broad black band across the crop, at the base of the metallic throat, extends for some distance down each side of the chest; front half of the chest pale yellow distinctly mottled with scarlet; remainder of the breast, abdomen, and under tail-coverts pale yellowish olive; under surface of the wings dark brown, with the inner margins of the quills and the coverts white; bill black; irides and legs dark brown. Total length 5·55 inches, culmen 0·7, wing 2·2, tail 3·2, tarsus 0·6.

Adult Female. Upper half of the head and back of the neck olive-shaded ashy brown, with the centres of the feathers rather darker; back, scapulars, least and median series of wing-coverts, and the upper tail-coverts olive-green; remainder of the wings dark brown, with the greater series of coverts and the quills broadly edged with yellowish olive; across the lower back a band of very pale olive-tinted yellow; tail brownish black, the feathers edged with olive, and most of them with whitish tips, broadest on the outer ones; on the sides of the head a small black patch in front of the eyes, beneath which is a nearly white loreal band; chin and throat pale dusky olive; chest more olive; lower breast, abdomen, and under tail-coverts very pale olive-yellow; thighs brown, flanks nearly white; under surface of the wings dark brown, with the inner margins of the quills and the coverts white, the latter tinted with yellow on the edge of the wing; bill, upper mandible black, lower one dark horny brown; irides deep brown; legs reddish brown. Total length 3·75 inches, culmen 0·7, wing 1·8, tail 1·2, tarsus 0·55.

HAB. Burmah.

THE present species is the Burmese local representative of the common Indian *Æ. saturata*. From that bird it is distinguished by having the sides of the neck deep red, the entire throat

metallic violet, with only the centre of the chin black; the black on the chest is confined to a broad pectoral band at the base of the metallic throat, extending down the sides of the upper chest; and the upper chest is pale yellow distinctly mottled with bright scarlet, from which latter character it has derived its name of *sanguinipectus*.

It is a very rare bird in collections; and the only specimens I am aware of are the six collected by Mr. Wardlaw Ramsay at Karen-nee, in the Tonghoo hills, in March and April 1874, and those collected at Mooleyat, in British Burmah, in January 1877, by Mr. Davison, from whose notes I have taken the colouring of the bill, legs, and irides.

I have described the adult male from one of the type specimens from Karen-nee in the Marquis of Tweeddale's collection. The description of the female, as well as the illustrations of both sexes, are taken from the specimens collected by Mr. Davison, and described as *Æ. waldeni* by Mr. Hume, who has kindly forwarded them to me from India to compare with the types of *Æ. sanguinipectus*, to which species they evidently belong.



ÆTHOPYGA DABRYI.

(DABRY'S SCARLET SUN-BIRD.)

Nectarinia dabryi, J. Verr. Rev. et Mag. Zool. 1867, p. 173, pl. 15.

Promerops dabryi, Gray, Hand-l. B. i. p. 110. no. 1350 (1869).

Æthopyga debryi, Walden, Ibis, 1870, p. 35.

Æthopyga dabryi, Selater, Ibis, 1870, p. 296; Walden, Ibis, 1875, p. 463.

Æthopyga abryi, Swinhoe, P. Z. S. 1871, p. 349.

♂ *ad.* similis *Æ. gouldiæ*, sed præpectore lætè scarlatino distinguendus.

♀ *ad.* suprâ olivascenti-viridis, pilco magis brunnescente: alis saturatè brunneis, tectricibus alarum olivascenti-viridi, remigibus flavicanti limbatis: dorso postico lætè fulvescente: rectricibus saturatè brunneis, olivascenti limbatis et albo apicatis, externis latius terminatis: subtùs pallidè olivascens, remigibus subtùs brunneis, intùs albo marginatis: subalaribus albidis: rostro et pedibus saturatè brunneis.

Hab. in Chinâ occidentali et in terrâ Burmanicâ montanensi.

Adult Male. Head, neck, upper back, scapulars, and least and median series of wing-coverts bright blood-red; forehead, crown, in front of the eyes, chin, throat, a patch on the ear-coverts, and another on the sides of the lower neck rich lilac, shaded steel-blue; lower back bright yellow, at times partially obscured by a few loose downy feathers from the centre of the back; upper tail-coverts steel-blue; remainder of the wings dark brown with brownish yellow edges to the feathers; tail black, the feathers edged with steel-blue, and the two centre ones almost entirely of that colour to within a short distance of their tips, the three outer ones on each side with broad pale ends; front of the breast rather brighter and paler red than the back, passing gradually into yellow on the remainder of the under surface of the body; under wing-coverts white; bill and legs dark brown; irides reddish brown. Total length 5·5 inches, culmen 0·6, wing 2·2, tail 3·1, tarsus 0·55.

Adult Female. Upper parts olive-green, rather browner on the head and neck; wings dark brown, the feathers broadly edged with olive-green, of a yellow shade on the quills; a broad buff patch on the lower back; tail dark brown, the feathers edged with olive and tipped with white, most broadly towards the outer feathers; underparts uniform, very pale olive; under surface of the wings dark brown, with the inner margins of the quills and the coverts white; bill and legs dark brown. Total length 3·5 inches, culmen 0·6, wing 1·7, tail 1·3, tarsus 0·55.

HAB. Western China and Burmah.

THIS beautiful and rare species is a native of the mountainous districts of South-western China and the Burmese territory. It is closely allied in form and colour to the Himalayan *Æ. gouldiæ*, from which bird it may be readily distinguished by the fore part of its breast being bright red, and from all the other known members of this genus by the metallic-blue chin and throat. The pale ending to the tail-feathers, mentioned by M. J. Verreaux as peculiar to this species, is a

character which is to be found in all the other metallic-throated members of the genus *Æthopyga*. The original specimen described by M. Verreaux in honour of M. Dabry was not "découverte dans le nord de la Chine," as Lord Walden justly doubted (*Ibis*, 1870, p. 35); for we are informed by Mr. Selater (*Ibis*, 1870, p. 297) that "the type specimen of this species was from the collection formed by M^{gr}. Chauveau on the hills of Ta-tsién-leou, which borders the eastern boundary of the Chinese province of Szechuen, and was transmitted to him by M. Dabry, the French Consul at Hankow."

Dr. Anderson procured this bird during the Yun-nan Expedition at Momicu, and has likewise captured it in Burmah, at Ponsee, in the Kakhyen hills, in March, at an elevation of 3300 feet above the sea.

Lieut. Wardlaw Ramsay also collected in Burmah, in March 1874, an immature male from Karen Nee, and a female from the Tonghoo hills, at an elevation of 4200 feet, which specimens have been kindly lent to me by Lord Walden, to whose friendly assistance I am thus indebted for being able to figure and describe the female of this species. The adult male in the accompanying illustration is drawn from a very fine specimen, collected at Moupin by Père David, and now in Mr. Swinhoe's collection.



ÆTHOPYGA GOULDIÆ.

(MRS. GOULD'S SUN-BIRD.)

Cinnyris gouldiæ, Vigors, P. Z. S. 1831, p. 44; Gould, Cent. Him. B. pl. 56 (1832); Blyth, J. A. S. B. xi. p. 192. no. 52 (1842).

Nectarinia gouldiæ, Jard. Monogr. Sun-birds, pp. 233, 269 (1842); Blyth, J. A. S. B. xii. p. 974 (1843); Gray, Gen. B. i. p. 98 (1847); Blyth, Cat. B. Mus. A. S. B. p. 223. no. 1353 (1849); Bp. Consp. Av. i. p. 405. no. 10 (1850); Gould, B. Asia, pt. 19, pl. 6 (1867); Pelzeln, Ibis, 1868, p. 307.

Æthopyga gouldiæ, Cab. Mus. Hein. i. p. 103 (1850); Reichb. Handb. Scansoriæ, p. 300. no. 701, pl. 583. figs. 3965-66 (1854); Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 733. no. 1068 (1856); Jerd. B. Ind. i. p. 364 (1862); Beavan, Ibis, 1867, p. 142; id. Ibis, 1869, p. 419; Walden, Ibis, 1870, p. 35; Jerdon, Ibis, 1872, p. 16; Brooks, Str. F. 1875, p. 233.

Promerops gouldiæ, Gray, Hand-l. B. i. p. 110. no. 1346 (1869).

♂ *ad.* capite, collo, interscapulio et tectricibus alarum minimis sanguineis: fronte, vertice, mento gulâque, maculâ auriculari et alterâ ad collum imum positâ, chalybeo-violaceis: alis brunneis, olivaceo limbatis, tectricibus alarum majoribus rubro lavatis: uropygio flavo: supracaudalibus violaceis chalybeo niten- tibus: rectricibus nigris, duabus centralibus basin versûs chalybeo-violaceis, reliquis hâc colore extûs lavatis: corpore reliquo subtûs lætè flavo.

♀ similis feminae adultæ *Æthopygæ dabryi*.

♂ *juv.* similis feminae adultæ, sed subtûs minûs olivaceus, pectore flavidiore.

Hab. in montibus Himalayanis orientalibus.

Adult Male. Forehead and crown violet-shaded steel-blue: back and sides of the head and neck, mantle, least and median series of wing-coverts bright glossy blood-red; a nearly black patch in front of the eyes; a large spot of violet-shaded steel-blue on the ear-coverts, and another one of the same colour on the side of the lower neck; remainder of the wings dark brown, with the edges of the feathers olive, shaded with red on the greater coverts; lower back bright yellow, at times partially obscured by a few loose downy olive feathers from the centre of the back; upper tail-coverts violet-shaded steel-blue; tail black, with the basal two thirds of the centre feathers and with the edges of the others violet shaded steel-blue, some of the outer feathers with pale ends; underparts bright yellow; chin and throat violet-shaded steel-blue; abdomen, thighs, and under tail-coverts faintly tinted with olive; under surface of the wings dark brown, with the inner margins of the quills and the coverts white; bill and legs brownish black; irides reddish brown. Total length 5.4 inches, culmen 0.6, wing 2.2, tail 3, tarsus 0.55.

Adult Female. Similar in plumage to that of *Æ. dabryi*.

Young Male (1st stage). Similar to adult female, but with the underparts less olive, and yellower on the breast; one red feather on the wing-coverts.

Young Male (2nd stage). Similar to the last, but with the upper part of the head and neck more ashy; several red feathers on the wing-coverts; centre of the breast rich yellow, slightly streaked with orange-red on the crop.

HAB. Central and Eastern Himalayas, Nepaul, Sikhim, Assam, and southward through the hilly districts of Tipperah and Chittagong to Arracan.

THIS graceful and beautifully coloured Sun-bird belongs to the "metallic-throated" division of the *Æthopyga*, and may be readily recognized by its metallic blue throat, and by the fore part of the chest being yellow, by which latter character it is to be distinguished from its eastern representative *Æ. dabryi*, with which species alone it is liable to be confounded.

According to Messrs. Hume and Davison's notes to me, this species is "common throughout the Central and Eastern Himalayas, but does not, so far as we know, extend westward of the valley of the Beas. It is common about Simla, Kotegurh, and many localities in the valley of the Sutlej, and thence eastwards through Gurhwal, Kumaon, Nepaul, and Sikhim into Assam; but how far eastward in Assam it advances we do not know. Southwards we have it from the Khasia and Naga hills, Hill Tipperah, and the hills of Chittagong; and it is reported from the Arracan hills; but how far south of Akiab it ranges along the Arracan yonca is still uncertain. Like the other Himalayan species it is locally migratory, being found in summer up to about 6000 feet, while in the cold weather it may be met with in the low valleys and in the wooded tracts of the Subhimalayan dhoons and terais, which range from elevations of 700 to 1800 feet above the sea-level. We have never succeeded in obtaining a nest."

It may be observed that Dr. Jerdon was not so far wrong when (*l. c.*) he gave the range of this species as follows—"throughout the Himalayas from Kumaon to Sikhim, and extends to Assam, Sylhet, and Arracan;" although later (*Ibis*, 1872, p. 16) he remarks:—"I fancy Mr. Blyth, from whom I took the geographical distribution mentioned in my work, must have been misinformed on the subject. I have only found this beautiful Honey-sucker in the N.W. Himalayas, in the valleys of the Sutlej and Touse rivers. Stoliczka procured it in the same locality up to 9000 or 10,000 feet near Chini. I did not myself observe it higher up than Nachar. As stated in the 'Birds of India,' I never got it at Darjeeling; nor have I lately seen a specimen procured there, nor in any of the countries to the eastward."

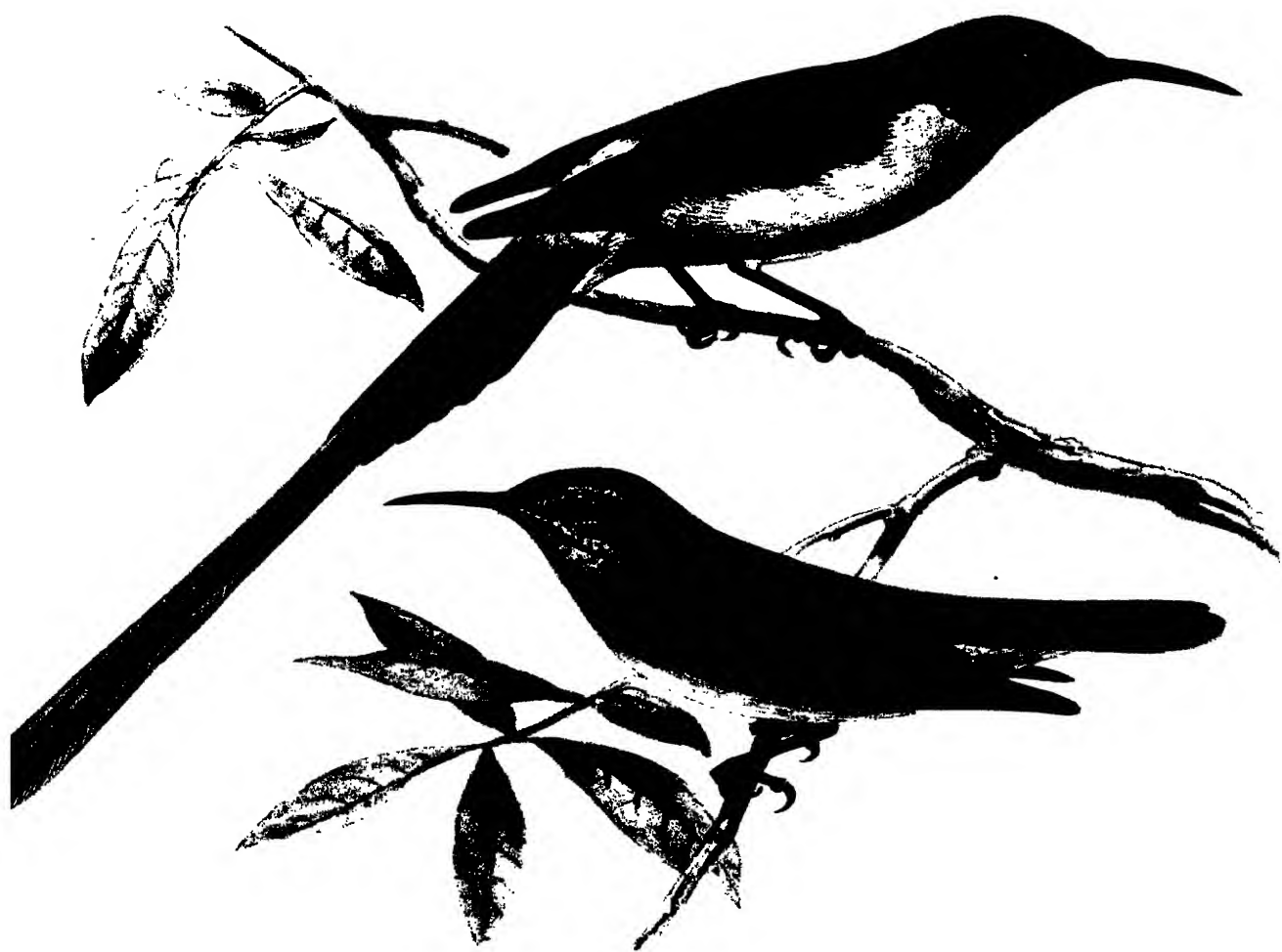
Captain Elwes, who has made some large collections in the neighbourhood of Darjeeling, also never met with this bird there, although Darjeeling would appear to be quite within its range. Is this to be accounted for by its partially migratory habits, shifting, as it does, from one locality to another according to the flowering-season? for it lives upon the small insects which frequent the blossoms and upon the honey which those blossoms afford, so that it would fare badly if it remained stationary when the seasonal drought had parched up the country. Thus we find it mentioned as only a summer visitant at Simla, where Captain Beavan found it in his garden in August feeding on the flowers of the *Hibiscus*; Mr. W. E. Brooks mentions his meeting with it in May at Danguli (between Mussoori and Ganguotri), while at Kotegurh it appears to be plentiful throughout the winter.

Mr. Gould, in his 'Birds of Asia,' writes:—"Captain Pinwill informs me that he found it somewhat numerous during September near Kotegurh, and observed them feeding from the

tubular flowers of a parasite growing in abundance on one of the Himalayan species of *Quercus*. The females and young males were by far the most numerous, the latter frequently showing a feather or two of the more brilliant parts of the plumage, while many of the old males had lost their long tail-feathers. Their food consisted chiefly of honey, with the addition of a few very minute insects."

Mr. Vigors dedicated this species to Mrs. Gould in acknowledgment of the services rendered to science by that accomplished artist, who executed the designs for her husband's earlier works.

My description of the adult male I have taken from a specimen collected by Major Godwin-Austen in the Naga hills. In the Marquis of Tweeddale's collection I have also examined specimens from Runglen, Simla, and one from fifty miles inland from Kelecyhing; and in the British Museum are skins from Kumaon and Nepal. The female I have described from a specimen in Mr. Gould's cabinet; the young males from specimens kindly lent to me for that purpose by Mr. Hume, one being from Kotegurh, the second from Mussoorie.



ÆTHOPYGA IGNICAUDA.

(FIRE-TAILED SUN-BIRD.)

Cinnyris ignicaudus, Hodgs. Ind. Rev. ii, p. 273 (1837); Gray, Zool. Misc. 1844, p. 82; Hodgs. J. A. S. B. xxiv, p. 575 (1855).

Cinnyris rubricaudata, Blyth, J. A. S. B. xi, p. 192 (1842).

Nectarinia phœnicura, Jard. Monogr. Sun-birds, pp. 242, 270, pl. 29 (1842).

Nectarinia ignicauda, Blyth, J. A. S. B. xii, p. 972 (1843); Gray, Cat. Mamm. & Birds Hodgs. Nepal, p. 59 (1846); id. Gen. B. i, p. 98 (1847); Blyth, Cat. B. Mus. A. S. B. p. 223, no. 1354 (1849); Bp. Consp. Av. i, p. 405, no. 11 (1850); Gould, B. Asia, pt. 2, pl. 24 (1850).

Cinnyris epimacurus, Hodgs. in Gray, Zool. Misc. 1844, p. 82; id. J. A. S. B. xxiv, p. 575 (1855).

Æthopyga ignicauda, Cab. Mus. Hein. i, p. 103, note (1850); Reichb. Handb. Scansoriæ, p. 302, no. 705, pl. 585, figs. 3973-75 (1854); Bp. Comptes Rendus, 1854, p. 265; Horsf. & Moore, Cat. B. E. I. Co. Mus. ii, p. 734 (1856); Jerd. B. Ind. i, p. 365 (1862); Beavan, Ibis, 1865, p. 414; Walden, Ibis, 1870, p. 36; Jerd. Ibis, 1872, p. 17; Elwes, P. Z. S. 1873, p. 659.

Promerops ignicauda, Gray, Hand-l. B. i, p. 110, no. 1344 (1869).

♂ *ad.* suprâ lætè scarlatinus: scapularibus et tectricibus alarum magis flavicantibus scarlatino lavatis, his brunneis, olivaceo vel sordidè scarlatino lavatis: tectricibus primariorum remigibusque saturatè brunneis angustè aurato-olivaceo limbatis, secundariis latiùs extùs lavatis: plagâ uropygiali conspicuâ sulfurè: supracaudalibus et rectricibus mediis longis scarlatinis, reliquis intùs nigricanti-brunneis, extùs scarlatinis: capite summo, facie laterali totâ et gutture metallicè chalybeis, hâc medialiter violaceo lavato: corpore reliquò subtùs flavo, pectore medio scarlatino, hypochondriis imis pallidè olivascenti-viridibus: subcaudalibus flavidis vix scarlatino lavatis: subalaribus albidis angustè olivaceo marginatis: remigibus subtùs saturatè brunneis, intùs angustè pallidioribus: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *mari* dissimilis, sordidè olivascenti-viridis, uropygio lætiùs sulfureo et supracaudalibus conspicuè flavicanti marginatis: tectricibus alarum minimis dorso concoloribus, reliquis et remigibus lætiore olivascenti-flavo limbatis: caudâ olivascenti-brunneâ, rectricibus exterioribus scarlatino lavatis: plumis superciliaribus vix pallidiùs olivascentibus: facie laterali sordidè virescenti-olivaceâ, genis gulâque angustissimè medialiter albedo lineatis: corpore reliquo subtùs olivascenti-viridi, pectore medio et abdomine lætiùs flavis: subalaribus albidis olivaceo lavatis, remigibus subtùs saturatè brunneis, intùs albedo limbatis.

Hab. in montibus Himalayanis orientalibus et in terrâ Assamicâ usque ad montes Cacharenses.

Adult Male. Forehead and crown steel-blue; back of the head and neck, back, upper tail-coverts, and two central tail-feathers bright scarlet; lower back yellow; wings dark, all the feathers broadly edged with

olive, strongly washed with scarlet on the least and median series of coverts; remainder of the tail dark brown, with slightly paler ends to the feathers, and with the outer webs more or less bright red; sides of the head black; chin and throat metallic violet down the centre, and shading into steel-blue on the sides; under surface of the body yellow, strongly shaded with scarlet on the centre of the chest, and paler and slightly shaded with olive on the abdomen, flanks, and under tail-coverts; under surface of the wings dark brown, with the inner margins of the quills and the coverts white, the latter mottled with olive-yellow, and dark brown near the bend of the wing; bill and legs black; irides dark brown. Total length 8 inches, culmen 0·75, wing 2·3, tail 5, tarsus 0·65.

Adult Female. Upper parts, including the least and median series of wing-coverts, olive-green; the crown and back of the neck slightly shaded with ash; lower back and upper tail-coverts yellower, the feathers being edged with that colour; remainder of the wings dark brown, with olive edges to the feathers; tail dark brown, with paler ends to most of the feathers, the two centre ones strongly washed with olive, and the outer webs of the remainder with olive and rufous brown; a very indistinct yellowish eyebrow; sides of the head and neck, throat, and front of the chest ashy olive, palest on the chin and throat; remainder of the body yellowish olive, the yellow predominating down the centre of the breast and on the under tail-coverts. Total length 4·5 inches, culmen 0·7, wing 2·15, tail 1·7, tarsus 0·65.

HAB. Himalayas, eastward from Gurhwal; Assam and Silhet, as far south as the Cachar hills.

This handsome species is readily distinguished by the long scarlet tail-feathers, the metallic violet and steel-blue throat, and the yellow breast. Another well-marked character is the peculiarly straight bill, which is of service in recognizing the females and immature males.

Messrs. Hume and Davison write to me:—"This species belongs properly to the East Himalayas. It is excessively common in Sikkim, far less so in Kumaon, and very rare in Gurhwal; but it never occurs, to the best of our belief, westward of the valley of the Jumna. In the cold season it may occasionally be found in the Subhimalayan tracts, as, for instance, at Kalsi, in the Dehra Dhoon, whence we have specimens.

"In the western hill portion of Assam, the Khasia and Naga hills, Silhet, and Cachar this species also occurs; but we have no record of it as yet from further south than the Cachar hills.

"The males of this species certainly put on a winter garb very similar to that of the female, only that the upper tail-coverts remain red, and they retain the red tail, which, however, is much shorter in the cold season."

Dr. Jerdon observes:—"At Darjeeling it appears about April in considerable numbers, the males being all in the process of donning their beautiful nuptial plumage; and before it is quite perfect most of them have left the immediate vicinity of the station; but where they go to or in what zone they breed, I could not fully determine. I did not see them there at any other season of the year; but I killed them at the foot of the hills about October."

The migration of this species, if indeed we should call it by that name, appears to be of the nature so common to the other members of the family—a mere shifting of their homes, prompted simply by the scarcity in the supply of food, to districts where a greater abundance of flowering plants and trees more readily supplies their daily wants.

The adult male and female here figured and described came from Sikkim, and are in Captain Elwes's collection.



ÆTHOPYGA TEMMINCKI

(TEMMINCK'S YELLOW-BACKED SUN-BIRD.)

Nectarinia temmincki, S. Müll. Natuurl. Gesch. Land- en Volkenk. p. 173, note (1843); S. Müll. & Schl. Verh. Nat. Gesch. Aves, p. 56, pl. 8, fig. 2 (1846); Gray, Gen. B. i, p. 98 (1847); Bp. Consp. Av. i, p. 405, no. 15 (1850); id. Comptes Rendus, 1854. p. 265; Schl. Handb. Dierk. p. 256 (1857).

Æthopyga temmincki, Reichb. Handb. Scansoriæ, p. 300, no. 702, pl. 584, fig. 3967 (1854); Walden, Ibis, 1870, p. 33; Elwes, P. Z. S. 1873, p. 679; Sharpe, Ibis, 1878, p. 419.

Promerops temmincki, Gray, Hand-l. B. i, p. 110, no. 1347 (1869).

♂ *ad.* suprâ lætè scarlatinus, pileo lætiore fasciâ Ω -formi metallicè violaceâ ornato: tectricibus alarum dorso concoloribus: remigibus brunneis, extûs olivaceis, primariis rubro lavatis: uropygio sulfureo: supra-caudalibus metallicè violaceis: rectricibus centralibus scarlatinis, reliquis saturatè brunneis extûs scarlatino lavatis: facie laterali, gutture et pectore scarlatinis, vittâ malari metallicè violaceâ: corpore reliquo subtûs cinereo, subcaudalibus flavidis: subalaribus et remigum margine interno albidis.

Hab. in insulis "Sumatra" et "Borneo" dictis.

Adult Male. Upper parts bright blood-red; centre of the forehead and crown carmine-red margined by a broad metallic violet band in the shape of a horseshoe, ending on the sides at the nostrils; lower back sulphur-yellow, partially covered by the loose dusky olive feathers from the middle of the back; upper tail-coverts metallic violet; tail—centre feathers and the outer webs of the others carmine-red, remainder of the tail dark brown; wings dark brown with the least and median series of coverts and broad edges to the greater coverts blood-red like the back, edges of the quills rufous-shaded olive; chin, throat, and front of the chest carmine-red; moustachial band metallic violet; remainder of the chest and the abdomen silvery grey; the flanks almost white; thighs and under tail-coverts tinted with olive-yellow; under surface of the wings dark brown with pale inner margins to the quills and with the coverts white; bill, irides, and legs dark brown. Total length 4·9 inches, culmen 0·6, wing 2·15, tail 2·3, tarsus 0·55.

HAB. Sumatra and Borneo.

THE following characters will distinguish this lovely species:—tail red, centre of the forehead and crown red nearly encircled by a broad horseshoe-shaped patch of metallic violet feathers; remainder of the upper parts and the throat as in *Æ. siparaja*; abdomen silvery grey.

The type specimen, described by S. Müller, came from Sumatra, where it inhabits the dense forests which clothe the mountain-ranges of that island; but it appears to be a very scarce species, but few examples existing in any collection. Mr. E. C. Buxton, who collected most of the Sumatran species of Sun-birds, did not meet with this bird in the Lampong district.

Until quite recently it was supposed to be a form peculiar to the island of Sumatra: but

Mr. Henry Everett has sent it home in his last collection from Sarawak ; and his specimen is now in the British Museum.

The female is not yet known ; but we may presume that it will be very similar to that of *Æ. siparaja*.

The adult male which we have here described and figured is in the British Museum, and was purchased from a collection of Sumatran birds.

ÆTHOPYGA MYSTACALIS.

(JAVAN RED SUN-BIRD.)

Nectarinia mystacalis, Temm. Pl. Col. 126, fig. 3 (1823); Drapiez, Dict. Class. xv, p. 513 (1829); S. Müll. & Schl. Verh. Nat. Gesch. Aves, p. 54, pl. 9, fig. 1 (1846); Schl. Handb. Dierk. p. 256 (1857); Ball, Str. F. 1874, p. 334.

Cinnerys mystacalis, Less. Man. d'Orn. ii, p. 37 (1828); id. Traité d'Orn. i, p. 296, no. 22 (1831).

?*Æthopyga siparaja*, Reichb. Handb. Scansoriæ, p. 301, no. 704, pl. 584, figs. 3971-72 (1854).

Æthopyga mystacalis, Licht. Nomencl. Av. p. 56 (1854).

Æthopyga lodoisiæ, Salvad. Ibis, 1865, p. 548; id. Ibis, 1871, p. 248.

Promerops siparaja (pt.), Gray, Hand-l. B. i, p. 109, no. 1339 (1869).

♂ *ad.* suprâ ruber, maculâ frontali, superciliis et facie laterali coccineis: fronte et vertice metallicè lilacinis: plagâ anteooculâ nigrâ: tectricibus minimis et medianis dorso concoloribus: majoribus remigibusque brunneis, extûs olivaceo limbatis: uropygio lætè sulfureo: supracaudalibus metallicè violaceis: rectricibus nigris pallidiûs apicatis, metallicè violaceo limbatis, duabus centralibus flavo colore lavatis: gutture toto et præpectore lætè coccineis, flavo striolatis, vittâ angustâ medianâ gulurî flavâ: vittâ utrinque mystacali metallicè chalybeâ violaceo nitente: corpore reliquo subtûs cineraceo, erisso et subcaudalibus flavo lavatis: corporis lateribus albicantibus: subalaribus et remigum margine interno albis: rostro, pedibus et iride saturatè brunneis.

Hab. in insulâ sondaicâ "Java" dictâ.

Adult Male. Upper parts deep glossy blood-red; centre of the forehead, sides of the crown, cheeks, and ear-coverts carmine-red; remainder of the forehead and crown metallic violet; in front of the eyes a triangular patch of black feathers; wings dark brown, the least and median series of coverts red like the back, the greater series of coverts and the quills edged with olive; lower back sulphur-yellow; upper tail-coverts metallic violet; tail black, with two thirds of the centre feathers and the margins of the others metallic violet, and with slightly paler ends to all but the centre feathers; chin, throat, and front of the breast carmine-red, very finely streaked with pale yellow, excepting down the centre of the upper half of the throat, where there is a broader and well-marked yellow streak; moustachial band uniform steel-blue, shaded with violet; remainder of the underparts grey, tinted with yellow on the abdomen, thighs, and under tail-coverts, and fading into white on the sides of the body; under surface of the wings brown, with the inner margins of the quills and the coverts white; bill, legs, and irides dark brown. Total length 5·2 inches, culmen 0·55, wing 1·95, tail 2·4, tarsus 0·55.

HAB. Java.

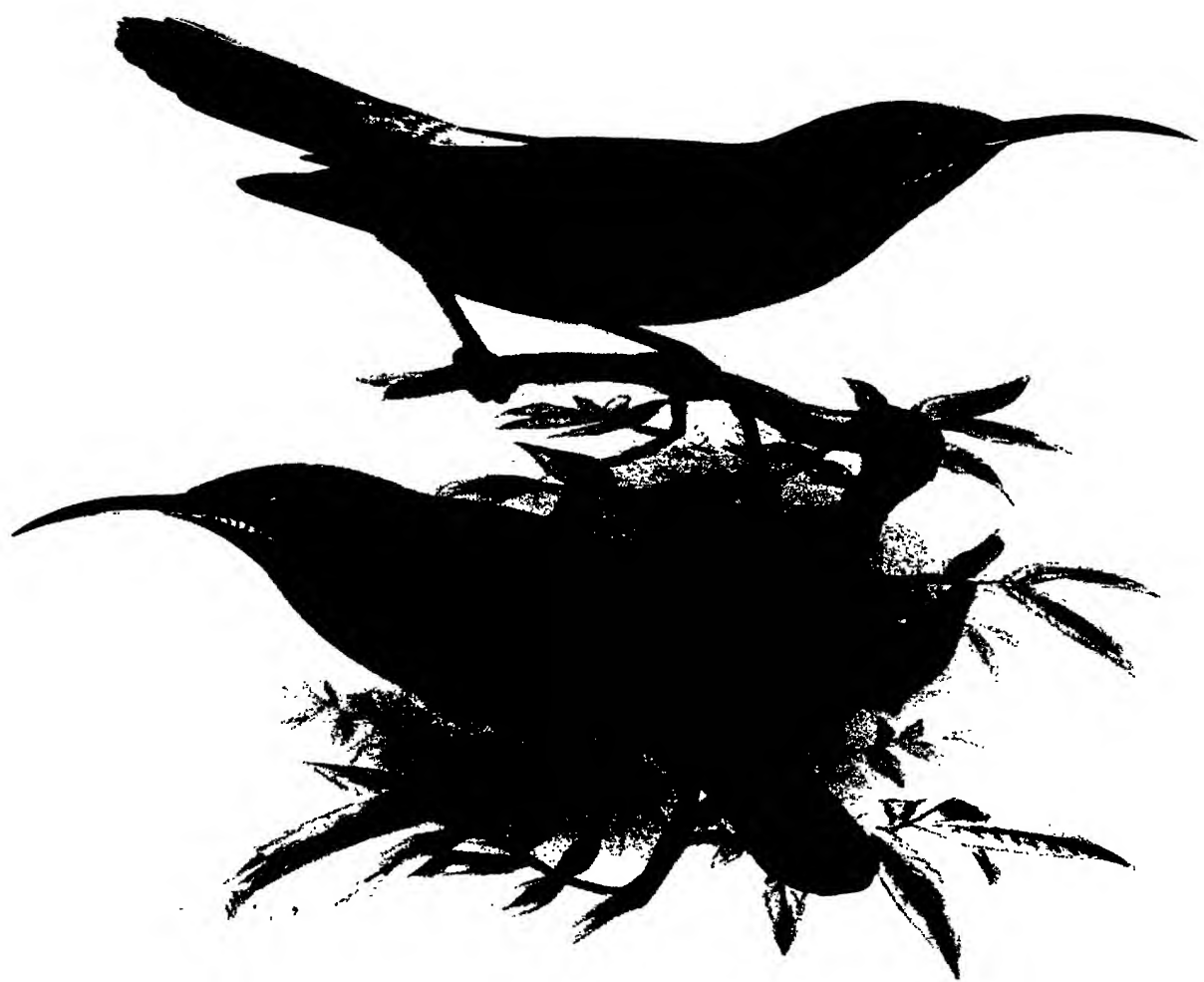
THIS fine species of Sun-bird approaches *Æ. siparaja* in the general colouring of its plumage, but may be readily known from that bird by the following characters, viz.:—A few feathers on the centre of the forehead and the sides of the crown or eyebrows red, and the abdomen pale silvery

grey: the tail is generally longer than in *Æ. siparaja*, and is of a more lilac shade. This character at once distinguishes it from *Æ. temmincki*, in which species the tail is red.

It is, we believe, exclusively confined to the island of Java, where, according to Temminck, it feeds upon small insects, principally spiders. In his original figure and description of the adult male he neglected the yellow on the lower back, a character which is invariably present in all the members of the genus *Æthopyga*, but may be often hidden by the elongated downy feathers which grow on the sides of the middle back, and constitute one of the characters of this genus.

Having been able to examine only adult male specimens, we must refer our readers for the female to Müller's work, in which are figured the female as well as the nest and eggs. The female appears to offer no marked difference from that of *Æ. siparaja*; and the nest is of the ordinary domed form, with a hole at one side, and is suspended from a twig. The egg is represented as white, and measures 0·65 by 0·4 inch. According to these authors the bird is not rare in Java in suitable localities, such as coffee-plantations, and in the forests surrounding the villages, as well as in the mountains.

It is, however, a very scarce bird in collections; and we believe that the type specimen no longer exists. The specimen which we have here figured and described is in the Bremen Museum, and was kindly shown to me by Dr. Finsch. I have carefully compared the type of *Æ. lodoisiae*, which is a very fine adult male, evidently of this species: and there is a beautiful skin in the Paris collection, also an adult male.



ÆTHOPYGA MAGNIFICA.

(BLACK-BELLIED YELLOW-BACKED SUN-BIRD.)

Æthopyga magnifica, Sharpe, Nature, 3rd August, 1876, p. 297.

♂ *ad.* similis *Æ. flavostriata*, sed major et abdomine nigro nec olivascente distinguendus.

♀ *ad.* supra olivascenti-viridis, interscapulio et scapularibus rubro lavatis: tectricibus alarum minimis et medianis dorso concoloribus: remigibus rectricibusque brunnescenti-nigris rubro marginatis, alis externè pallidiùs terminatis: subtùs flavicanti-olivacea: alis subtùs saturatè brunneis, subalaribus remigibusque intùs albidis.

HAB. in insulâ philippinensi "Negros" dictâ.

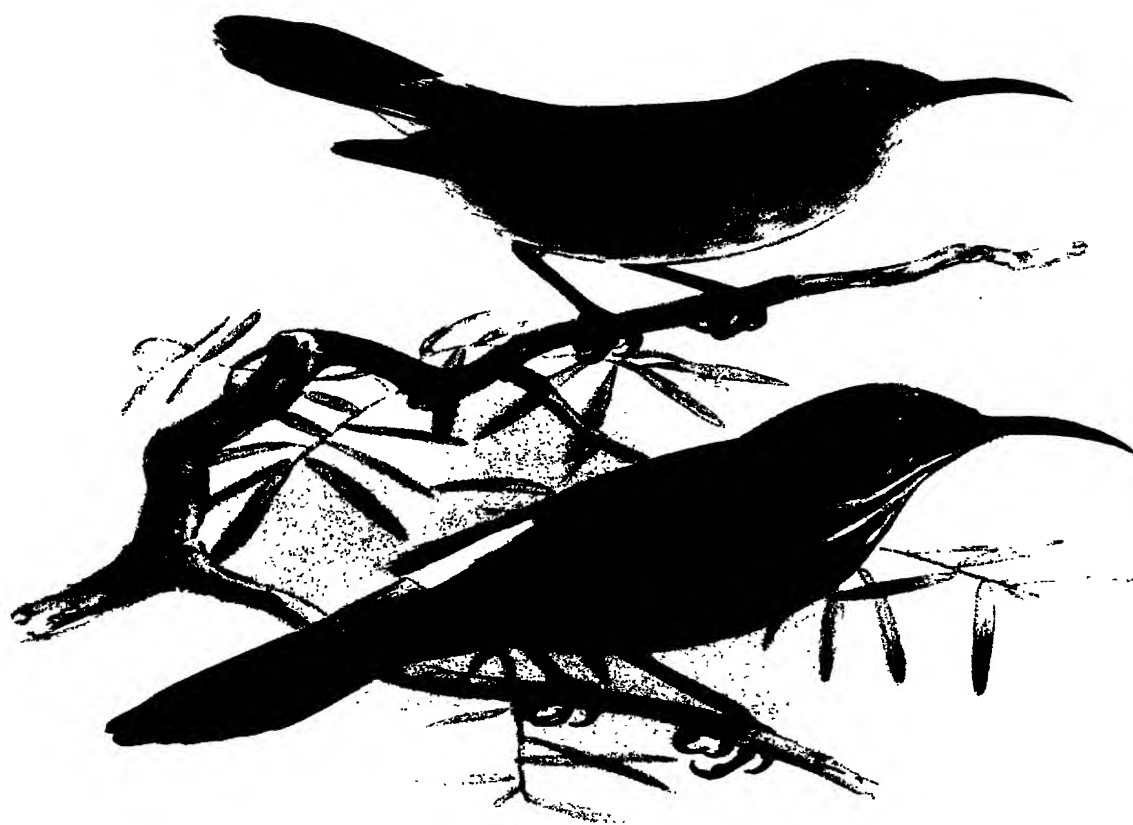
Adult Male. Upper parts blood-red, including the sides of the head and neck and the least series of wing-coverts; wings brownish black, the median series of the coverts broadly edged with blood-red, the greater coverts partially edged with the same colour; forehead and front of the crown metallic violet, with a black patch on each side in front of the eyes; lower back bright yellow; loose downy feathers on the middle of the back black; upper tail-coverts metallic violet; tail black, the feathers broadly edged with metallic violet, excepting towards the ends of the feathers; chin, throat, and front of the breast bright blood-red, paler than the back; a metallic violet band from the sides of the chin to about halfway down the sides of the throat, with its inner edge black; remainder of the underparts dusky black, including the entire under surface of the wings; upper mandible dark brown, lower one brownish flesh-colour; irides and legs dark brown. Total length 5 inches, culmen 0·9, wing 2·3, tail 2·0, tarsus 0·6.

Adult Female. Upper parts olive-green, mottled with red on the upper back and scapulars; least and median series of wing-coverts similarly coloured; remainder of the wings and the tail brownish black, the feathers edged with deep red; some of the outer tail-feathers with pale ends; underparts yellowish olive; under surface of the wings dark brown, with the coverts and inner margins of the quills white. Total length 4·3 inches, culmen 0·9, wing 2·2, tail 1·7, tarsus 0·6.

HAB. Island of Negros in the Philippine archipelago.

THIS is another of the fine species recently discovered by Dr. Steere in the Philippine Islands. It belongs to that division of the red-throated section of *Æthopyga* in which the metallic portions of the crown and tail are blue, and may be distinguished from its allies by the abdomen and under tail-coverts being black, and by its larger size.

This species may possibly be the same as one mentioned by Count Salvadori in a letter to 'The Ibis' (1865, p. 549), where he says:—"An *Æthopyga* (sp. non descr.) from Menado, in M. Verreaux's collection, has the abdomen almost black." If such be the case, I should doubt the correctness of M. Verreaux's locality, "Menado."



ÆTHOPYGA FLAVOSTRIATA.

• (CELEBEAN YELLOW-BACKED SUN-BIRD.)

Nectarinia flavostriata, Wallace, P. Z. S. 1865, p. 478, pl. 19. fig. 2; Brügg. Abhandl. nat. Ver. Bremen, v. p. 73 (1876).

Promerops flavostriata, Gray, Hand-l. B. i. p. 110. no. 1349, part. (1869).

Æthopyga flavostriata, Walden, Ibis, 1870, p. 35; id. Trans. Z. S. viii. p. 71 (1874); Salvad. Ann. Mus. Civic. Genova, vii. p. 659 (1875).

Nectarophila, sp.?, Walden, Ibis, 1870, p. 42. no. 30.

Nectarinia, sp.?, Walden, Trans. Z. S. viii. p. 71 (1874).

Æthopyga beccarii, Salvad. Ann. Mus. Civic. Genova, vii. p. 659 (1875).

♂ *ad.* suprâ sanguineus: fronte et sincipite, supracaudalibus et rectricum marginibus violaceis chalybeo nitentibus: uropygio flavo: caudâ nigrâ: alis saturatè brunneis, tectricibus minimis et medianis sanguineis dorso concoloribus, tectricibus majoribus remigibusque saturatè rubro marginatis: gutture et præpectore scarlatinis, pallidè flavo conspicuè striolatis, strigâ mystacali utrinque nigrâ metallicè violacèa nitente: corpore reliquo subtùs saturatè fuscescenti-olivaceo: maxillâ saturatè brunneâ, mandibulâ pallidiorè; iride saturatè brunneâ.

♀ *ad.* suprâ olivascenti-viridis, capitis collique lateribus pileo concoloribus: alis saturatè brunneis, tectricibus minimis et medianis dorso concoloribus, tectricibus majoribus remigibusque rubro latè marginatis: caudâ brunnescenti-nigrâ rubro lavatâ, rectricibus latè rubro marginatis et ad apicem pallidioribus: subtùs omnino flavicanti-olivacea.

♂ *juv.* similis femine adultæ, sed plumis verticis quibusdam rubro marginatis: collo postico, interseapulio et scapularibus ferè omnino sanguineis, supracaudalibus olivascenti-flavis: tectricibus alarum minimis et medianis rubro marginatis: plumis quibusdam pectoralibus rubro variis.

Hab. in insulâ "Celebes" dictâ.

Adult Male. Upper parts deep blood-red; forehead and front half of the crown violet-shaded steel-blue; lower back yellow; upper tail-coverts and broad margins of the tail-feathers violet-shaded steel-blue, the remainder of the tail black; wings dark brown, the least and median series of coverts red like the back, the greater coverts and the quills narrowly edged with dark red; feathers in front of the eyes black; the cheeks deep red; lores, chin, throat, and front of the breast bright scarlet-red, strongly streaked with pale yellow, especially towards the chin; a metallic violet and black moustachial streak extending from the beak to about halfway down the sides of the throat; remainder of the breast, abdomen, and under tail-coverts very dark dusky olive; under surface of the wings dark brown, with the coverts and the inner margins of the quills white; bill dark brown, with the lower mandible paler; legs and irides dark brown. Total length 4·6 inches, culmen 0·7, wing 2·1, tail 1·9, tarsus 0·55.

Adult Female. Upper parts olive-green, as well as the sides of the head and neck, the forehead and crown browner; wings dark brown, with the least and median series of coverts olive-green, greater coverts and quills broadly edged with red; tail brownish black, washed with red, the feathers broadly edged

with red, and with pale ends; entire underparts pale yellowish olive. Total length 4·2 inches, culmen 0·75, wing 2, tail 1·6, tarsus 0·55.

Young Male. Forehead, crown, and nape olive-brown, with some of the feathers of the crown edged with red; back of the neck, upper back, and the scapulars blood-red, with the base of the feathers olive-yellow, which colour shows through to a certain extent; lower back olive; upper tail-coverts olive-shaded yellow; wings and tail dark brown, with all the feathers broadly edged with blood-red; the edges of the wing-coverts partially mottled with olive-yellow; the tail-feathers, with the exception of the two centre ones, having broad pale ends; the entire underparts as well as the cheeks pale yellowish olive; a few of the feathers on the front of the breast mottled with red. Total length 3·7 inches, culmen 0·65, wing 1·8, tail 1·5, tarsus 0·55.

Male in moult. Similar in plumage to the adult male, but with all the tail-feathers broadly edged with blood-red, excepting the two centre ones, which are edged with violet-shaded steel-blue, while on the centre of the breast there is a patch of pale yellowish olive.

IIAB. Celebes.

THE Yellow-backed Sun-bird of the island of Celebes belongs to the section of *Æthopyga* in which the metallic portions of the crown and the upper tail-coverts are steel-blue, and in which the throat is red margined by a steel-blue moustachial streak. It occupies an intermediate position between *Æ. siparaja* and *Æ. magnifica* as regards its colouring and size, as it does in its geographical distribution. From both of these birds it may be distinguished by the yellow streaks on the throat, whence it has derived its name, as well as by the dusky olive colour of its abdomen.

The first mention we find of this bird is in a letter by Mr. Wallace (Ibis, 1860, p. 140), where he writes:—"I have just returned from a three-months' exploration of Menado and the surrounding district of Minahassa, forming the north-eastern extremity of the Celebes. I first visited the most elevated districts, taking up my residence in a village at an elevation of 3500 feet. I then removed to a forest district beyond the lake of Tondano, at an elevation of 1500 feet. Of the few species I obtained, however, several were new to me; one was a most lovely *Cinnyris* with scarlet breast and yellow-striped throat (I hope a new species)."

This was probably the identical specimen which five years later he made the type of his *Nectarinia flavostriata*, and is the one in the British Museum from which I have described the adult male. My descriptions of the adult female and of the male in moult are also taken from Mr. Wallace's specimens in our national collection, while that of the young male is from Count Salvadori's type specimen of *Æthopyga beccarii*.

Count Salvadori (*l. c.*) mentions that Signor Beccari collected two adult males at Kandari, on the western coast, in June 1874, as well as the type of his *Æ. beccarii*, which he recognizes as a young bird; but at the time he wrote, naturalists were not apparently aware that some, though not all, of this group of *Æthopygæ* have these red shades in the plumage of the females and young males, and apparently also in adult males during their moult. This, however, is found to be the case in this species as well as in *Æ. magnifica* from the Philippines, but is not met with in the females and young males of the nearly allied *Æ. siparaja*.

Dr. Brüggemann first drew my attention to the fact that *Æ. beccarii* belongs to this species;

and in his notes upon the ornithology of Celebes and the Sanghir Islands (*l. c.*) he supposes the plumage of the female and young male to be identical. It appears to me, however, that the plumage of the hen bird is never quite so red as the young male (*Æ. beccarii*, Salvad.), though I should mention that none of the specimens which I have examined have any indication of their sex on the labels. My adult female is probably the identical specimen of which the Marquis of Tweeddale writes (*Ibis*, 1870, p. 42):—"Mr. Wallace possesses an example of what appears to be the young male of a sixth species from Celebes."

Dr. Brüggemann further writes to me:—"I am quite certain that I am right in pronouncing the plumage of *Æ. beccarii* to be that of the young male as well as the female of this species. Not only do the two birds agree exactly in size and structure, but the *currucarian* plumage of *Æ. flavostriata* had never before been described. I have also examined several specimens in transitional plumage. By these it is shown that the full plumage is obtained partly by moult, partly by change of coloration, as indicated in my Celebes paper. The red edges to the quills and tail-feathers appear to be worn off; and thus the wings and tail assume a uniform brownish black colour."

The figures in the Plate are drawn from an adult male in the Marquis of Tweeddale's collection and from Count Salvadori's type specimen of *Æ. beccarii*.



ÆTHOPYGA SIPARAJA.

(MALAYAN YELLOW-BACKED SUN-BIRD.)

Certhia siparaja, Raffles, Tr. Linn. Soc. xiii. p. 299 (1820).

Cinnyris siparaja, Vig. Mem. Raffles, p. 673 (1830).

Nectarinia mystacalis (pt.), Blyth, J. A. S. B. xi. p. 107 (1842); Müll. & Schl. (pt.), Verhand. Zool. Aves, p. 54 (1846); Low, Sarawak, p. 410 (1848); Pelzeln, Reise Novara, Vög. p. 51 (1865).

Nectarinia lathamii, Jard. Monogr. Sun-birds, pp. 233, 268 (1842); Blyth, J. A. S. B. xii. p. 970 (1843); Gray, Gen. B. i. p. 98 (1847).

Nectarinia siparaja, Jard. Monogr. Sun-birds, pp. 235, 273 (1842); Gray, Gen. B. i. p. 98 (1847); Blyth, Cat. B. Mus. A. S. B. p. 223. no. 1352 (1849); Bp. Consp. Av. i. p. 405. no. 9 (1850); Sclat. P. Z. S. 1863, p. 220.

Æthopyga siparaja, Cab. Mus. Hein. i. p. 103 (1850); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 731 (1856); Moore, P. Z. S. 1859, p. 461; Walden, Ibis, 1870, p. 33; id. Ibis, 1872, p. 380; Tweeddale, Ibis, 1877, p. 301.

Æthopyga eupogon, Cab. Mus. Hein. i. p. 103, note (1850); Reichb. Handb. Scansoriæ, p. 304. no. 711 (1854); Salvad. Ibis, 1865, p. 549; id. Ann. Mus. Civ. Genova, v. p. 174 (1874); Sharpe, P. Z. S. 1875, p. 106; id. Ibis, 1876, p. 42; Walden, tom. cit. p. 348; Sharpe, Ibis, 1877, p. 17.

Æthopyga chalcopogon, Reichb. Handb. Scansoriæ, p. 303. no. 708, pl. 586. figs. 3982-83 (1854); Walden, Ibis, 1870, p. 34; Salvad. Ann. Mus. Civ. Genova, v. p. 176 (1874).

Promerops siparaja, Gray, Hand-l. B. i. p. 109. no. 1339 (1869).

Promerops chalcopogon, Gray, tom. cit. p. 110. no. 1351.

Promerops eupogon, Gray, tom. cit. p. 110. no. 1352.

Æthopyga lathamii, Stoliczka, J. A. S. B. xxxix. p. 298 (1870); Walden, Ibis, 1871, p. 166.

♂ *suprà* pulchrè sanguineus, capite laterali et colli lateribus cum tectricibus alarum minimis et medianis sanguineis: fronte et vertice, supracaudalibus et rectricum marginibus metallicè violaceis: uropygio flavo: alâ reliquâ saturatè brunneâ, pennis olivascenti-brunneo marginatis: loris, gutture toto et præpectore coccineis: vittâ mystacali metallicè violacâ: corpore reliquo subtùs sordidè cinerascente.

♀ *ad.* *suprà* olivacea, tectricibus minimis et medianis dorso concoloribus: alâ reliquâ saturatè brunneâ, pennis olivascenti-flavo marginatis: rectricibus nigris, olivaceo limbatis, et albido terminatis, exterioribus latius: corpore reliquo subtùs pallidè olivascenti-flavo, pectore medio lætiùs flavicante.

Hab. in peninsulâ Malaccensi et in insulis "Sumatra" et "Borneo" dictis.

Adult Male. Upper parts deep glossy blood-red; upper half of the cheeks, ear-coverts, sides of the neck, and the least and median series of wing-coverts of the same colour; a triangular patch in front of the eye black; forehead, front half of the crown, upper tail-coverts, and margins of the tail-feathers metallic violet; lower back gamboge-yellow; remainder of the wings dark brown, with olive-brown

margins to the feathers; a broad loreal band, chin, throat, and front of the breast carmine-red; a moustachial band of metallic violet and black feathers; remainder of the underparts dusky ash, often tinted with olive on the flanks, abdomen, and under tail-coverts; under surface of the wings dark brown, with the inner margins of the quills paler, and the coverts white: bill, irides, and legs dark brown, with the under portion of the lower mandible much paler. Total length 4·4 inches, culmen 0·6, wing 2, tail 1·8, tarsus 0·5.

Adult Female. Upper parts olive, including the least and median series of wing-coverts; remainder of the wings dark brown, the feathers margined with olive-yellow; tail black, the feathers margined with olive, and with pale ends, broadest on the outer ones; sides of the head olive, slightly shaded with ash in front of the eyes, and rather yellower on the cheeks; entire under surface of the body pale olive-yellow, with the yellow slightly predominating down the centre of the breast; under surface of the wings dark brown, with the inner margins of the quills and the coverts white. Total length 3·6 inches, culmen 0·65, wing 1·8, tail 1·4, tarsus 0·5.

HAB. Malay peninsula, from Penang to Singapore, Sumatra, and Borneo.

THIS Sun-bird is a native of the Malayan region, and is a very well-known species, being common in many localities.

It belongs to that section of *Æthopyga* in which the throat is red and the metallic portions of the crown, upper tail-coverts, and tail blue.

To this section also belongs *Æ. mystacalis* from Java, which is to be distinguished by having an eyebrow and a few feathers on the forehead red. *Æ. flavostriata* and *Æ. magnifica* differ in the almost black colour of their abdomens and under tail-coverts, these parts being in *Æ. siparaja* of an ashy brown, often tinted with olive. From the Burmese and Tenasserim species it may readily be distinguished by the black inner margins to its violet moustachial bands. Its nearest ally appears to be *Æ. nicobarica*, which may be recognized by its larger size, and especially by its greater length of bill.

On the island of Penang it has been collected by Mr. Swinhoe; and Dr. Cabanis has recorded it from Malacca; but Messrs. Hume and Davison write to me:—"We have not found this species abundant anywhere in the Malay peninsula. It was tolerably plentiful at the waterfalls near Penang, and again on Singapore Island, where it was not uncommon in the cocoanut plantations.

"It does not seem to differ in any way in habits or note from *Æ. cara*, *Æ. miles*, or *Æ. nicobarica*.

"Males measured in the flesh 4·25 to 4·62 inches, expanse 6·25 to 6·5, bill from gape 0·65 to 0·7, wing 2·05 to 2·12, tail from vent 1·65 to 1·82, tarsus 0·45 to 0·5: weight 0·2 ounce."

In Sumatra, where it was first discovered by Sir Stamford Raffles, it is known to the natives by the name "Sipa-raja," which means "King Honey-sucker," so called, no doubt, from its brilliant colouring.

In the summer of 1876 Mr. E. C. Buxton collected this species in the Lampong district; and the Marquis of Tweeddale, in his article upon that collection (*Ibis*, 1877, p. 301), clears up all doubts as to the identity of Sir Stamford Raffles's *Certhia siparaja* in the following short paragraph:—"The examples from S.E. Sumatra are identical with Malaccan, Penang, and Bornean specimens; Cabanis's title of *eupogon* must therefore fall."

In Java it is probably entirely replaced by *Æ. mystacalis*, while in all the known portion of Borneo it is a common species, frequenting, according to Mr. Wallace, the mangrove swamps.

In the latter island it has been collected at Banjermassing by Mr. Motley, at Sarawak by Doria and Beccari, at Marup, Sibü, and the Matu beach by Mr. Everett, and in Labuan and on the opposite mainland by Mr. Low and Governor Ussher.

One of the specimens collected by Mr. Everett at Sibü, on the 7th of January, 1875, a male, in apparently fully adult plumage, differs from all the other specimens which I have examined in having the lower breast, abdomen, and under tail-coverts of a dusky olive-yellow, and the yellow patch on the lower back rather strongly mottled with scarlet; this latter character I have met with in a specimen of *Æ. vigorsi*, and do not regard as of specific value. The peculiar colouring of the abdomen would appear to be of more importance; yet I think it may have occurred from some accident in the moult; and only being aware of a single specimen thus marked, I consider that it would be premature to separate it from the other specimens collected at the same time, with which I have compared it.

This variety I have figured as well as a typically coloured adult male collected by Mr. Everett at Sibü in January, and a female from the coast opposite Labuan, from which specimens my descriptions have also been taken.

Much confusion has arisen amongst naturalists as to the correct title for this species, so that a few remarks upon this subject may be of service.

The name of *mystacalis*, Temm., belongs to a distinct Java species; that of *siparaja*, Raffles, was applied to the Sumatran bird; and *lathamii*, Jardine, probably belongs to the Malacca bird, to which Cabanis afterwards gave the title of *eupogon*. These three latter names the Marquis of Tweeddale has already proved to be synonymous. Reichenbach's *chalcopogon* from Borneo, though described as having the crown green, is figured with that part violet, and certainly belongs to this species.



ÆTHOPYGA NICOBARICA.

• (NICOBAR YELLOW-BACKED SUN-BIRD.)

Æthopyga nicobarica, Hume, Str. F. 1873, p. 412; 1874, pp. 80, 85, 101, 196.

♂ *ad.* similis *Æ. siparaja* sed rostro longiore et fortiore distinguendus.

♀ *ad.* similis fœminæ *Æ. siparaja* sed gutture rubro conspicuè lavato distinguenda.

Hab. in insulis Nicobaricis.

Adult Male. Similar in plumage to *Æ. siparaja*; but distinguished from that bird by the greater length and strength of the bill. Total length 4·3 inches, culmen 0·75, wing 2·1, tail 2, tarsus 0·55.

Adult Female. Upper parts olive, including the least and median series of wing-coverts; remainder of the wings dark brown, the feathers margined with olive; tail brownish black, the feathers margined with olive, and some of the outer ones with rather paler ends; sides of the head olive, of a dusky shade in front of the eyes, and rather yellower on the cheeks; under surface of the body pale olive-yellow; chin and throat very strongly shaded with brick-red; under surface of the wings dark brown, with the inner margins of the quills and the coverts white. Total length 3·8 inches, culmen 0·65, wing 1·9, tail 1·6, tarsus 0·5.

HAB. Nicobar Islands.

The present species is a native of the Nicobars, a small group of islands in the Bay of Bengal, off the north-west extremity of Sumatra.

The only character which we observe in the adult males, as distinguishing this bird from *Æthopyga siparaja*, is the greater length and strength of the bill,—a character which in many birds we should not consider to be of specific value; but in this instance it is rendered more important by the fact of the females in *Æ. nicobarica* and *Æ. siparaja* differing in the very marked character of the colouring of the throat: this in the present species is strongly shaded with red, as the illustrations of these sexes will clearly show.

Mr. Hume, during his visit to the Nicobars, found these birds on the island of Kondul hanging about the white flowers of some leguminous creeper; and further specimens were collected on the island of Meroë: and according to some of the expedition it was seen on the island of Car Nicobar; but no specimens were obtained there.

The following are Mr. Davison's notes:—"It frequents the tops of the cocoanut-palms in company with *A. pectoralis*, diligently searching among the flowers, now hanging head down, now poising itself in front of the flowers, and occasionally making a short hurried sally, apparently after some insect. I shot several specimens on some low flowering shrubs. It has a short, feeble, twittering song, which the male utters every now and then. Dr. Stoliczka showed me a nest of this bird which he had found: it was fastened to the very end of a long narrow pandanus-leaf, about thirty feet from the ground."

Mr. Hume gives the following notes, taken from specimens in the flesh:—"Dimensions, *males*—length 4 to 4·75 inches, expanse 6·25 to 6·5, wing 1·82 to 2·12, tail from vent 1·6 to 2, tarsus 0·5 to 0·55, bill at front 0·71 to 0·79.

"*Females*. Length 3·82 to 4·25, expanse 5·82 to 6·12, wing 1·82 to 1·9, tail 1·25 to 1·6, tarsus 0·5, bill at front 0·61 to 0·64.

"In the male the legs and feet and upper mandible are dark brown, the lower mandible pale brown; in the female the upper mandible is horny brown, the lower mandible horny yellow, and the legs and feet yellow; in both sexes the irides are brown."

The specimens which I have here figured and described were collected by Mr. Davison on the island of Kondul, in March, and were kindly lent to me by Mr. Hume, in whose collection they are now preserved.

I have also examined an adult in the British Museum, collected by Mr. Hume, and presented by him to that institution.



ÆTHOPYGA CARA

ÆTHOPYGA CARA.

(TENASSERIM YELLOW-BACKED SUN-BIRD.)

Cinnyris mystacalis (pt.), Blyth, J. A. S. B. xi. p. 107 (1842).

Nectarinia goalpariensis (pt.), Blyth, J. A. S. B. xii. p. 969 (1843).

Æthopyga miles, Walden, P. Z. S. 1866, p. 541; Beavan, Ibis, 1869, p. 419.

Æthopyga lathamii, Hume, Str. F. 1874, p. 473.

Æthopyga cara, Hume, loc. cit. (note); Walden, Ibis, 1876, p. 348.

♂ *ad.* suprâ saturatè sanguineus, scapularibus et tectricibus alarum minimis et medianis concoloribus: fronte et vertice, ut et supracaudalibus saturatè metallicè viridibus violaceo nitentibus: uropygio lætè flavo: alâ reliquâ saturatè brunncâ, pennis olivascenti-flavo limbatis: caudâ nigrâ, rectricibus metallicè ex violaceo viridi marginatis: gutture et præpectore scarlatinis: vittâ mystacali metallicè violacè corpore reliquo subtùs pallidè cinerascente, hypochondriis et abdomine vix olivaceo lavatis.

♀ suprâ olivascenti-viridis, alis saturatè brunneis: tectricibus alarum minimis et medianis dorso concoloribus, plumis vix scarlatino limbatis: majoribus et remigibus olivascenti-flavo marginatis: rectricibus nigris, olivascenti-flavo marginatis et albido terminatis: corpore reliquo subtùs pallidè olivaceo.

Hab. in terrâ Burmanensi.

Adult Male. Forehead and crown deep metallic green, shaded with violet; plumes in front of the eyes black; nape deep olive-brown, the feathers broadly edged with red; cheeks, ear-coverts, sides and back of the neck, upper back, scapulars, and the least and median series of wing-coverts deep blood-red; remainder of the wings dark brown, the greater coverts and the quills edged with olive-yellow; lower back bright yellow; upper tail-coverts deep metallic green, shaded with violet; tail black, with the greater portion of the two centre feathers and the edges of the remainder metallic violet, very slightly shaded with green; chin, throat, and front of the breast bright scarlet-red, with a narrow uniform metallic violet moustachial stripe; remainder of the under surface of the body ashy grey, slightly washed with olive-yellow on the flanks, thighs, and middle of the abdomen; under surface of the wings brown, with the inner margins of the quills and the coverts white; bill dark brown, with the lower mandible rather paler; irides and legs dark brown. Total length 4.9 inches, culmen 0.65, wing 2.2, tail 1.9, tarsus 0.55.

Adult Female. Upper parts olive-green; wings dark brown, with the least and median series of coverts olive-green, a few of these feathers partially edged with red, the greater coverts and the quills edged with olive-yellow; tail black, the feathers edged with olive-yellow and with pale ends, broadest and whitest on the outer ones; underparts pale olive, slightly more yellow towards the abdomen and under tail-coverts; under surface of the wings brown, with the inner margins of the quills and coverts white, the latter shaded with yellow towards the edge of the wing; bill dark horny brown; irides brown; legs dark reddish brown.

HAB. Tenasserim and Burmah.

THE present species, which is nearly allied to *A. siparaja*, may be distinguished by the following characters:—In addition to its somewhat larger size and longer bill, the metallic crown extends further back, and is of a deep metallic green glossed with violet, as are also the upper tail-coverts; the tail-feathers are edged with metallic violet glossed with green; the moustachial stripes are narrower and are formed of uniform metallic violet feathers with no black margins to their inner webs; the abdominal regions are paler and more ashy.

Messrs. Hume and Davison write to me:—"We have obtained this species everywhere from Mergui northward through Tavoy and Moulmein to Buling on the Tha-tone plains between the Sittang and the Salween; and it probably extends somewhat further north than this between these two rivers. East of the Salween we have not observed it much further north than Moulmein, while south of Mergui we have not yet seen it.

"Like other Sun-birds they are to be met with in gardens, secondary growth which springs up on forest clearings, and on the outskirts of forests. Once only, a little south of Ye, a few were seen in thick forest in a dense cane-brake.

"Flowers and the cocoanut-palms (which throw out a new inflorescent spike nearly every month) are particularly favourite resorts for this and other closely allied species, where they may generally be seen in pairs, though sometimes three or four visit the same tree; but more than a pair never act in concert.

"The song is very feeble, and consists of only a few twittering notes uttered generally while the birds move about from one bunch of flowers to another. Only on a very few occasions have we seen this species hovering in front of flowers, and then only for a few seconds, rather as if looking for a convenient perch than attempting to feed. When feeding it alights sometimes above the flower, and, bending down, turns its head up into the flower, or, when perched below, it thrusts its bill straight up into the chalice, and appears to require some half dozen successive sips to exhaust the nectar.

"*Males.* Length 4·6 to 5·25 inches, expanse 6·62 to 7·2, tail 1·75 to 2·0, wing 2·05 to 2·35, tarsus 0·46 to 0·6, bill from gape 0·7 to 0·75, weight 0·75 ounce.

"The legs and feet are dark horny brown, in some greenish brown; the soles are reddish yellow; the upper mandible is dark horny brown, in some almost black; the lower mandible pale reddish brown; irides dark brown.

"*Female.* Length 4·3 inches, expanse 6·25, tail 1·45, wing 2·0, tarsus 0·5, bill from gape 0·65, weight 0·25 ounce. In this the only female we have obtained, the legs and feet are reddish brown."

From the localities assigned by Mr. Blyth in the above references to his *Cinnyris mystacalis* and *Nectarinia goalpariensis*, it is evident that he confounded the Malay and Tenasserim birds with the common Indian species. It is also of the present Sun-bird that Captain Beavan writes (*l.c.*), "I procured a fine specimen of this beautiful bird at Moulmein on the 1st of September 1865. This species frequents flowering trees, especially the *Amherstia*, and also low bushes and annuals near the ground when in flower. On the 22nd of September 1865 I obtained a specimen at Moulmein, on *Costus argyrophyllus*, a common weed there; I also observed it on my trip up the river Salween, in villages, feeding on the flowers of the cocoanut-palm; its note is a loud piping."

The adult male and female here figured and described were collected at Pabyai, in the Mergui district, by Mr. Davison, and were kindly lent to me by Mr. Hume. I have also examined the specimens collected by Captain Beavan at Moulmein and the Salween river, and an adult male from Tongoo, on the Sittang river, Burmah, in the Marquis of Tweeddale's collection, all of which undoubtedly belong to the present species.

Since writing the above, Mr. Oates has most kindly forwarded to me for inspection six specimens of this rare Sun-bird, collected by him in Lower Pegu, Rangoon, Sittang, Moulmein, and South Tenasserim. Five of these are males in apparently full plumage; and four of these agree perfectly with the description I have above given of an adult male from Pabyai. In one of the specimens from Rangoon the bases of the scarlet feathers on the lower throat are white, while in a South-Tenasserim specimen this part is dusky black with a narrow white subterminal bar, and the two other specimens are somewhat intermediate in this respect. Now in the fifth male specimen, also from South Tenasserim, the base of the scarlet feathers is dusky black with obsolete and barely to be distinguished pale subterminal bars; so that the colouring of the base of the feathers is undoubtedly of no specific value. This fifth specimen, however, has other differences, already pointed out to me by Mr. Oates: the metallic portions of the forehead and crown are deep metallic violet only very faintly glossed with the green shade which is the predominant colour of that part in the other specimens; and the upper tail-coverts also are more strongly glossed with violet. I feel, however, quite confident that these characters are not of specific value, but only seasonal, or the effect of moult.

The most reliable characters, therefore, to distinguish this bird from *A. siparaja* is the narrow uniform metallic violet moustachial streak, and from *A. scheria* the shortness of the bill.

The sixth specimen sent by Mr. Oates, from Sittang, is a female, and agrees with the specimen I described above from Pabyai, excepting in its being slightly browner and less olive on the upper parts, and with no signs of red margins to any of the least or median series of wing-coverts. According to the label, it measured in the flesh—"total length 4.2 inches, expanse 6.1, bill from gape 0.75, wing 1.94, tail 1.35, tarsus 0.51."



ÆTHOPYGA SEHERIÆ.

(HIMALAYAN YELLOW-BACKED SUN-BIRD.)

Gouldpourah Creeper, Lath. Gen. Hist. B. iv, p. 221, pl. 74 (1822).

Nectarinia seheriæ, Tickell, J. A. S. B. ii, p. 577, no. 37 (1833); Walden, Ibis, 1876, pp. 347, 348.

Cinnyris miles, Hodgs. Ind. Rev. ii, p. 273 (1837); id. J. A. S. B. xxiv, p. 575 (1855).

Certhia goalpariensis, Royle, Ill. Him. Bot. ii, p. 78, pl. 7, fig. 1 (1839).

Cinnyris labecula, McClell. P. Z. S. 1839, p. 167.

Cinnyris mystacalis (pt.), Blyth, J. A. S. B. xi, p. 107 (1842).

Nectarinia goalpariensis, Jard. Monogr. Sun-birds, pp. 230, 267, pl. 26 (1842); Blyth, J. A. S. B. xii, p. 969 (1843); Gray, Cat. Mamm. & Birds, Nepal, p. 59 (1846); id. Gen. B. i, p. 98 (1847); Blyth, Cat. B. Mus. A. S. B. p. 223, no. 1351 (1849); Bp. Consp. Av. i, p. 405, no. 8 (1850); Gould, B. Asia part 2, pl. 25 (1850).

Nectarinia labecula, Blyth, J. A. S. B. xii, p. 973 (1843); Gray, Gen. B. i, p. 98 (1847).

Æthopyga miles, Cab. Mus. Hein. i, p. 103 (1850); Bp. Comptes Rendus, 1854, p. 265; Horsf. & Moore, Cat. B. Mus. E.I. Co. ii, p. 732, no. 1066 (1856); Adams, P. Z. S. 1858, p. 496; Jerd. B. Ind. i, p. 362 (1862); Bulger, Ibis, 1869, p. 159; Walden, Ibis, 1870, p. 32; Godwin-Austin, J. A. S. B. xxxix, p. 98 (1870); Jerd. Ibis, 1872, p. 16; Ball, Str. F. 1874, p. 396; Hume, Str. F. 1875, p. 233; Blyth & Walden, Cat. Mamm. & Birds of Burma, p. 141, no. 491 (1875); Walden, Ibis, 1876, p. 348; Hume, Str. F. 1877, p. 28.

Æthopyga goalpariensis, Cab. Mus. Hein. i, p. 103 (1850); Reichb. Handb. Scansoriæ, p. 301, no. 703, pl. 584, figs. 3968-70 (1854); Bp. Comptes Rendus, 1854, p. 265; Hume, Nests and Eggs Ind. B. p. 146 (1873).

Anthreptes goalpariensis, Licht. Nomencl. Av. p. 56 (1854).

Promerops goalpariensis, Gray, Hand-l. B. i, p. 110, no. 1343 (1869).

Æthopyga seheriæ, Hume, Str. F. 1877, p. 122.

♂ *ad.* suprà ruber, tectricibus alarum minimis et medianis dorso concoloribus: tectricibus majoribus saturatè brunneis, olivaceo limbatis, interioribus rubro marginatis: remigibus brunneis olivaceo marginatis: fronte et vertice lætè metallicè viridibus: nuchâ et occipite olivaceis: uropygio lætè flavo: supracaudalibus nitidè metallicè viridibus: remigibus duobus centralibus metallicè viridibus versùs apicem nigris, reliquis nigris metallicè viridi marginatis, vix violaceo lavatis: capitis lateribus dorso concoloribus: plagâ anteoculari nigrâ: genis, gutture et pectore toto lætissimè sanguineis, vittâ malari metallicè violaceâ: corpore reliquo subtilius flavicanti-olivaceo: subalaribus et remigum margine interno albis: rostro nigro, mandibulâ rufescenti-brunneâ: pedibus et iride saturatè brunneis.

♀ *ad.* mari dissimilis: suprà olivascanti-viridis, pileo magis cinerascente: tectricibus alarum minimis et medianis dorso concoloribus: majoribus et remigibus saturatè brunneis aurato-olivaceo marginatis:

rectricibus saturatè brunneis, latè olivaceo marginatis, exterioribus paucis albido intùs terminatis : capitis lateribus olivascenti-viridibus : corpore subtùs olivascente, pectore medio et abdomine magis flavicantibus : gutturo medio scarlatino lavato : subalaribus et remigum pogonio interno albis, his flavido lavatis.

Hab. in peninsulâ indicâ, præcipuè in montibus Himalayanis.

Adult Male. Forehead and greater portion of the crown deep metallic green; occiput and nape olive; sides of the head and neck, upper back, scapulars, and least and median series of wing-coverts deep red; remainder of the wings dark brown, with the edges of the feathers olive partially washed with red on the greater series of coverts; lower back bright yellow; upper tail-coverts metallic green; tail black with the greater portion of the two centre feathers and the margins of the others metallic green, often slightly shaded with violet; sides of the head deep red; a triangular patch of black feathers in front of the eye; chin, throat, and crop blood-red; a metallic violet moustachial band; remainder of the underparts yellowish olive; under surface of the wings dark brown with the inner margins of the quills and the coverts white; bill black shading into reddish brown on the lower mandible; legs and irides dark brown. Total length 6 inches, culmen 0·75, wing 2·35, tail 3·1, tarsus 0·6.

Adult Female. Upper parts olive-green, slightly more ashy on the crown; least and median series of wing-coverts olive like the back; remainder of the wings dark brown with broad golden olive edges to the feathers; tail dark brown, the feathers broadly edged with olive, and with narrow whitish tips to the inner webs of a few of the outer feathers; sides of the head olive-green; underparts pale olive strongly mottled with scarlet down the centre of the throat; belly and under tail-coverts slightly yellower, especially down the centre of the breast; under surface of the wings dark brown with the inner margins of the quills and the coverts white, the latter shaded with yellow; bill dark brown, with the lower mandible rather paler; irides and legs dark brown. Total length 4·1 inches, culmen 0·7, wing 1·9, tail 1·5, tarsus 0·55.

HAB. Himalayas from Gurlwal eastward to Assam, Silhet, and Tipperah, and southward to the Chota Nagpur district in Bengal.

THIS well-known Indian form of *Æthopyga* may be readily distinguished by the crown and metallic portions of the tail being green and the nape dull olive-brown: in these characters *Æ. vigorsi* much resembles it, but differs in having a patch of metallic plumes on the ear-coverts, the throat finely streaked with yellow, and the abdomen more ashy and less olive. *Æ. cara*, another nearly allied form, differs in the metallic portions of the crown, upper tail-coverts, and tail being more or less shaded with violet, and in the abdominal regions being more ashy.

In the southern limits of its range on the Indian peninsula it occurs only as a straggler in Barabhum, where Colonel Tickell met with his type specimens at Scheria flitting about the willow bushes in the dried bed of a stream; and Mr. V. Ball saw a specimen in the Ghats east of Jona, while travelling between Ranchi and Purulia.

It has on many occasions been confounded with *Æ. cara*, the closely allied Burmese form; and we are still unable to determine to which of these species the Silhet and Arracan birds should be referred; but most probably the present species inhabits the former locality, and *Æ. cara* the Arracan district.

With regard to its distribution our best authorities upon this subject are Messrs. Hume and

Davison, who write to me:—"The exact limits of this species have yet to be determined. We have the true *Æ. seheriæ* from Cachar, the Khasia hills, Gowhatty in Assam, Sikkim, Nepaul, Kumaon, and Gurhwal; but we are not aware of its occurring westward of the Jumna, in the Himalayas. We have never obtained it in the neighbourhood of Simla or northward in the valleys of the Sutlej and Beas, though we have collected there continually for years.

"In the summer it ranges as high as six and seven thousand feet; in the winter it may be found in all the sub-Himalayan tracts, the Dhoons, Terails, and Doars that skirt the Himalayas from where the Jumna debouches from the hills eastward of Assam. They are particularly plentiful about Kalsi and Dehra Dhoon during January and February.

"How far up the valley of Assam this species extends we have not yet been able to ascertain. How far, again, southward of Cachar it spreads, and where it meets the nearly allied *Æ. cara*, and whether or not the species that occurs in the Arracan hills is identical with *Æ. cara* or *Æ. seheriæ*, or distinct from both, are points which need further investigation.

"This species being so well known, we need only add that a fine male measured in the flesh—length 6·37 inches, expanse 7·12, tail from vent 3·25. The legs, feet, and bill vary from dark brown to dingy black; the irides are hazel."

Towards the western limit of its range Mr. W. E. Brooks met with it near the banks of the Bhagirata at Dunda and Batwari, between Mussoori and Gangotri, in May.

According to Dr. Leith Adams its note is soft, sweet, and musical, and it is met with singly in the dense jungles in the lower ranges of the Himalayas.

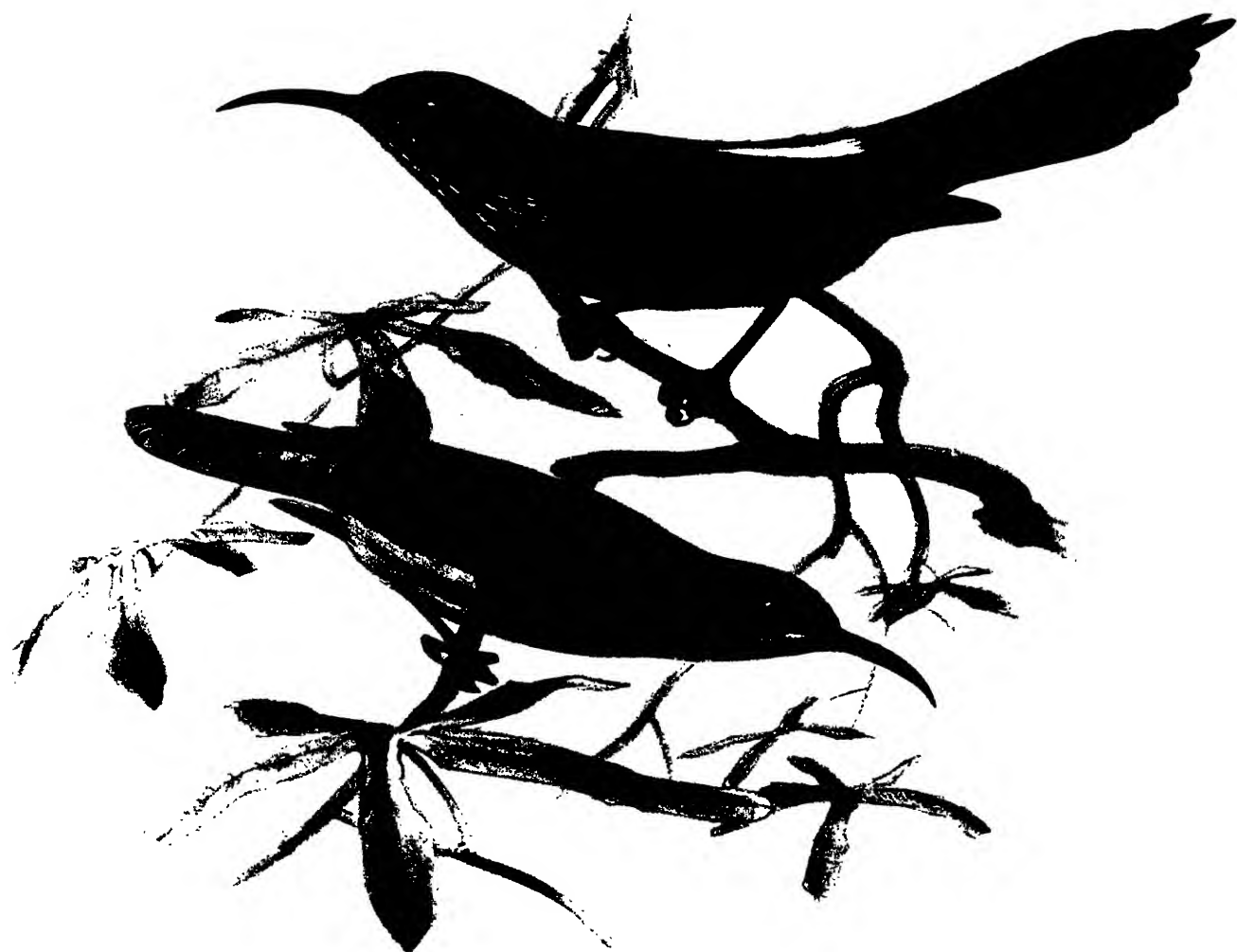
Captain R. C. Tytler kept a cage full of these birds alive for a considerable time by feeding them upon sugar and water, bread and milk, occasionally varying their diet with honey. The males sang in captivity, and soon became familiar and confiding.

According to Mr. Hodgson's MSS. and drawings, this bird begins to lay in April, the young being fully fledged in July. The nest is of the usual oval form, suspended from a twig, and is about 6 inches in length by 3 inches in breadth, with an oval entrance about 2 inches below the point of suspension. There is no portico or projection above the entrance. The nest is composed of fine roots with a little moss compactly interwoven with some cobwebs, and is lined with silky cotton-like fibres.

The eggs are two or three in number, greyish white, speckled with brown, and measure about 0·65 by 0·45 inch, in shape rather broad ovals pointed towards the small end.

With regard to the synonymy of this bird, we may observe that the name *seheriæ* was applied by Tickell to specimens from Scheria, in Barabhum, and undoubtedly belongs to this species; that of *miles*, Hodgson, to specimens from Nepal; *goalpariensis*, Royle, to examples from Dehra Dhoon; and *labecula*, McClelland, to the Assam bird. *C. mystacalis*, Blyth, comprises, besides this species, *Æ. cara*, *Æ. siparaja*, and possibly also the true *Æ. mystacalis*. *Æ. miles* of Beavan, as well as of Walden (P. Z. S. 1866, p. 541), refers to *Æ. cara*.

The specimens which I have here figured and described are an adult male and female in my own collection, the latter collected by Dr. J. Reid in Upper Assam. There is no indication of the sex on the label; but it appears to be an adult bird; and as the other specimens in the same collection were males in full plumage, we presume this specimen to be an adult female.



ÆTHOPYGA VIGORSI.

(VIGORS'S SUN-BIRD.)

Cinnyris vigorsii, Sykes, P. Z. S. 1832, p. 98; id. J. A. S. B. iii, p. 542 (1834); Jerd. Madras, Journ. xi, p. 227 (1840); Blyth, J. A. S. B. x, p. 925 (1841).

Cinnyris concolor, Sykes, P. Z. S. 1832, p. 99; id. J. A. S. B. iii, p. 543 (1834).

Nectarinia vigorsii, Gould, B. Asia, part 2, pl. 26 (1850).

Æthopyga vigorsii, Reichb. Handb. Scansoriæ, p. 303, no. 707, pl. 586, figs. 39, 79–81 (1854); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii, p. 733, no. 1067 (1856); Jerd. B. Ind. i, p. 363 (1862); Walden, Ibis, 1870, p. 33; Fairbank, Str. F. 1876, p. 255.

Promerops vigorsii, Gray, Hand-l. B. i, p. 110, no. 1348 (1869).

♂ *ad.* suprâ ruber, scapularibus et tectricibus alarum minimis dorso concoloribus: scapularibus imis, tectricibus reliquis remigibusque brunneis, his pallidè brunneo limbatis: uropygio flavo: supracaudalibus et rectricibus duabus mediis metallicè viridibus, rectricibus reliquis purpurascenti-nigris, metallicè viridi vix violascente marginatis: fronte et vertice metallicè viridibus: pileo postico nuchâque purpurascenti-brunneis: facie laterali sordidè rubrâ, maculâ postauriculari metallicè violaceâ: gutture et pectore scarlatinis flavo striatis: vittâ mystacali distinctâ metallicè violaceâ: corpore reliquo subtùs cineraceo: plumis infrapectoralibus nigricantibus vix torquem formantibus: tibiis brunneis: subalaribus albis, vix brunnescenti lavatis: rostro nigro: pedibus nigris: iride saturatè brunneâ.

♀ *ad.* obscurè viridescens vix olivaceo tincta, pileo magis cinerascente: alâ brunneâ, tectricibus et remigibus olivascenti-brunneo limbatis: rectricibus nigricantibus, extùs olivaceo marginatis, ad apicem pallidioribus, duabus centralibus vix purpurco nitentibus: subtùs pallidiùs cinerascens, vix olivaceo lavata: tibiis brunneis: subcaudalibus sordidè albedo marginatis: subalaribus et remigum pogonio interno albis.

Hab. in peninsulâ Indicâ occidentali.

Adult Male. Forehead and greater portion of the crown metallic green; occiput and nape dark brown; sides of the head and neck, upper back, greater portion of the scapulars, and the least series of wing-coverts deep red; remainder of the wings and some of the greater scapulars dusky brown; lower back bright yellow; upper tail-coverts metallic green; tail black, with the greater portion of the two centre feathers and the margins of the others metallic green, often slightly shaded with violet; on the sides of the head a triangular patch of black feathers in front of the eye, and a metallic violet patch just behind the ear-coverts; chin, throat, and crop blood-red, finely streaked with yellow; a metallic violet moustachial band; remainder of the underparts ashy grey, with a few black feathers on the front of the chest, and the thighs brown; under surface of the wings dark brown, with the inner margins of the quills brownish white and the coverts white; bill black, shading into reddish brown on the lower mandible; irides dark brown; legs black. Total length 5·5 inches, culmen 0·8, wing 2·5, tail 2·3, tarsus 0·6.

Adult Female. Ashy brown; upper parts shaded with olive; greater wing-coverts and quills brown, the former narrowly edged with pale brown, the latter with olive-brown; tail brownish black, the feathers

edged with olive, and with rather paler broad ends to some of the outer feathers; underparts uniform paler ash-brown than the back, and very slightly tinted with olive; thighs darker and browner; under tail-coverts edged with white; under surface of the wings brown, with the inner margins of the quills and the coverts white. Total length 1·8 inches, culmen 0·75, wing 2·2, tail 1·8, tarsus 0·6.

HAB. The mountains in West Central India.

VIGORS's Sun-bird belongs to that section of the genus *Æthopyga* in which the mantle and throat are red, and the metallic portions of the crown, upper tail-coverts, and tail green. It is at once distinguished from the allied species by the metallic violet patch just behind the ear-coverts, and by the yellow streaks on the throat.

It is confined to Central India, and, although not uncommon in some few localities, is very local in its distribution.

Colonel Sykes's specimens all came from the Dakhun, where he only found them frequenting the lofty trees in the dense forests in the Ghats. Flies, spiders, ants, and other minute insects were discovered in their crops.

Messrs. Hume and Davison write:—"We have obtained this species both in the lower valley of the Tapti, in Western Khandeish, and in the hills north of Khandeish, and in the line of Ghats running down through Khandeish, and thence southward at Matheran (just above Bombay), and Mahableshwar, the hill station of Poonah. How far south of Mahableshwar it extends we are unable to say, but think it certainly does not get so far south as South Canara, or we think we must have obtained specimens.

"Dr. Jerdon says he obtained it in the Busta country, quite on the other side of the peninsula, about the same degree of north latitude as Bombay. We are not aware that any one else has met with it elsewhere than within the limits from which all our numerous specimens were obtained.

"From Mahableshwar the Rev. S. Fairbank wrote to us that he did not think this species was a permanent resident there. In January and February none were to be seen; as the season advanced they began to make their appearance, becoming more and more numerous, and advancing higher up the hills. It was not until May that they were at all plentiful on the summits of the hills.

"It seems probable that, as in the case of *Æ. seheriæ*, the birds descend during the cold season, and frequent the warm wooded tracts along the western base of the Ghats; for certainly in the cold season they descend to the plains-country of the valley of the Tapti.

"‘This Honey-sucker,’ says Mr. Fairbank, ‘flies very rapidly from tree to tree, and generally sits upon the tops of the loftiest branches. I once saw it, however, sitting upon the under bush within 10 feet of the ground. It has a very pleasing note, consisting of a rather shrill whistling chirrup. This is often twice repeated in quick succession during flight.’

"The following are measurements recorded in the flesh:—

"*Male*. Length 5·75 to 6 inches, expanse 7 to 7·5, tail from vent 2·12 to 2·38, wing 2·5 to 2·62; weight 5·5 to 6 drachms.

"*Female*. Length 5 to 5·12, expanse 6·62 to 7, tail 1·62, wing 2·25; weight 5·25 to 5·5 drachms.

"The bill is black, often, but not always, reddish brown on the lower mandible. The legs and feet are black; in some, probably younger birds, they are brownish black. The irides are generally dark brown; but in two males and a female obtained at Mahableshwar in May the irides were recorded as crimson.

"Of course the yellow striæ on the breast are a constant character; it is present in all our very large series."

The Marquis of Tweeddale has kindly lent me for examination a large series of this species collected by Mr. Fairbank in the Mahableshwar hills in May, at which season they have assumed their full breeding-plumage. In two of these specimens the lower back, instead of being of a uniform yellow, is more or less strongly mottled with scarlet, a variety of plumage which, although difficult to account for, I have observed in several of the other species of *Æthopyga*.

The male and female above figured and described were collected by Mr. Fairbank at the same locality in May; the former is in my own possession, the latter in the Marquis of Tweeddale's collection.

Its occurrence in the Busta country, although resting upon Dr. Jerdon's authority, appears to us improbable, and to require additional evidence; we have therefore omitted that locality from the range which has been assigned to the species.



ÆTHOPYGA SHELLEYI.

(SHELLEY'S YELLOW-BACKED SUN-BIRD.)

Æthopyga shelleyi, Sharpe, Nature, 3rd August, 1876, p. 297.

♂ *ad.* capite summo chalybeo, violaceo nitente: facie et collo lateralibus cum interscapulis saturatè coccineis: dorso reliquo olivaceo: uropygio sulfureo: tectricibus supracaudalibus et rectricibus medianis chalybeis, reliquis nigris extùs chalybeis: tectricibus alarum olivaceis dorso concoloribus, majoribus vix rubro lavatis: remigibus brunneis, extùs olivaceo limbatis: vittâ malari chalybeâ: subtùs lætè sulfureus, hypochondriis pallidioribus: gulâ laterali linealiter lætè coccineâ: præpectore etiam coccineo striolato: subalaribus albis, sulfureo lavatis.

Hab. in insulis philippinensibus "Palawan, Balabac" dictis.

Adult Male. Forehead and crown greenish, shaded steel-blue; side and back of the head and neck and the upper back deep blood-red; in front of the eye black; least and median series of wing-coverts, scapulars, and loose downy feathers on the middle of the back deep olive; lower back sulphur-yellow; upper tail-coverts deep metallic bluish green; tail black, the entire centre feathers and the sides of the others deep metallic bluish green, shaded with violet; remainder of the wings dark brown, with broad olive edges to the feathers; underparts sulphur-yellow, paler towards the abdomen; chin and sides of the throat deep blood-red, the outer webs of the feathers forming the moustachial streak greenish shaded steel-blue; lower half of the throat finely streaked with bright red; under surface of the wings brown, with the inner margins of the quills and the coverts white; bill, legs, and irides dark brown. Total length 4 inches, culmen 0.6, wing 1.9, tail 1.8, tarsus 0.55.

HAB. Islands of Palawan and Balabac, in the Philippine archipelago.

THIS very lovely Sun-bird, which my friend Mr. Sharpe has done me the honour to name after me, was discovered in the Philippine Islands by Dr. Steere, who brought home four specimens, all in adult male plumage, which he has informed me were collected in the mangrove-swamps near the shore. In such localities they were not uncommon, actively flitting around these bushes and chasing each other over the surface of the water, which mirrored back their bright colours.

Shelley's Sun-bird belongs to a small section of the genus *Æthopyga*, where the throat is yellow; of this group there are two known species—the present one and *Æ. duivenbodii*, Schlegel, from the Islands of Sanghir, a small group situated between Mindanao and Celebes.



ÆTHOPYGA BELLA.

(WHITE-BREASTED YELLOW-BACKED SUN-BIRD.)

Æthopyga bella, Tweeddale, Ann. & Mag. Nat. Hist. xx, p. 537 (1877); id. P. Z. S. 1877, pp. 819, 829.

♂ *ad.* fronte et vertice antico metallicè viridibus: pilco postico nuchâque olivascenti-viridibus: plumis ante-ocularibus nigris: facie laterali, capitis et colli lateribus sanguineis: maculâ postparoticâ metallicè lilacinâ: tectricibus alarum olivascenti-viridibus, remigibus saturatè brunneis, extùs olivascenti-viridibus: dorso postico et uropygio lætè sulfureis: supracaudalibus et rectricibus duabus centralibus metallicè viridibus, harum reliquis nigris, metallicè viridi vix violascente marginatis: strigâ mystacali metallicè lilacinâ, infrâ viridi: mento summo angustè sanguineo: mento reliquo, gutture toto et præpectore lætè sulfureis, hâc angustè scarlatino striato: corpore reliquo subtùs et subcaudalibus albis: subalaribus albis: remigibus infrâ brunneis, intùs albo limbatis: rostro et pedibus saturatè brunneis: iride saturatè brunneâ.

♀ *ad.* mari dissimilis: suprâ saturatè olivascenti-viridis, tectricibus alarum dorso concoloribus: remigibus brunneis, extùs olivascenti-brunneis: dorso postico et uropygio lætè sulfureis: supracaudalibus olivascenti-viridibus: rectricibus nigris olivaceo marginatis, extimis albedo terminatis: facie laterali et gutture toto cineraceis olivaceo lavatis: corpore reliquo subtùs et subcaudalibus albidis, pectore medio flavo lavato: subalaribus albis: remigibus infrâ brunneis, intùs albidis.

Hab. in insulâ Philippinensi "Surigao" dictâ.

Adult Male. Forehead and front half of the crown metallic green; remainder of the crown, occiput, and nape olive-green; in front of the eye a triangular patch of black feathers; sides of the head and neck and the upper half of the back blood-red; on the ear-coverts a metallic lilac patch; wings dusky black with the scapulars and all the feathers broadly edged with olive-green; lower back sulphur-yellow; upper tail-coverts and two centre tail-feathers metallic green; remainder of the tail-feathers black, edged with metallic green, shaded with violet; sides of the chin and sides of the upper half of the throat blood-red; a narrow metallic lilac moustachial stripe extends about halfway down the sides of the throat, and is continued in a broader band of metallic green; remainder of the chin, the throat, and the front of the chest bright sulphur-yellow, with a few of the feathers on the crop slightly streaked with scarlet; remainder of the body and the under tail-coverts white; under surface of the wings dark brown with the inner margins of the quills and the coverts white; bill, legs, and irides dark brown. Total length 3·3 inches, culmen 0·55, wing 1·6, tail 1·2, tarsus 0·5.

Adult Female. Upper parts olive-green; wings dark brown with all the coverts broadly edged with olive-green, and the quills more narrowly so with olive-brown; lower back sulphur-yellow; upper tail-coverts olive-green; tail black, the feathers edged with olive-green and with broad pale ends to some of the outer feathers; cheeks, chin, and throat very pale olive-shaded ash; rest of under surface of body and under tail-coverts white, shaded with pale yellow down the centre of the breast, abdomen, and on the under tail-coverts; under surface of the wings dark brown, with the inner margins of the

quills and the coverts white; bill, legs, and irides dark brown. Total length 2·9 inches, culmen 0·5, wing 1·55, tail 1, tarsus 0·5.

HAB. Island of Surigao, in the Philippine archipelago.

THIS beautiful little Sun-bird belongs to the yellow-throated section of the genus *Ethopyga*, and is nearly allied to *Æ. shelleyi*, from which it is distinguished by the green forehead, the olive occiput and nape, the metallic violet patch upon the ear-coverts, by the metallic lilac and green moustachial band, and by the white abdomen.

At the present time this species is only known from the type specimens, five in number, sent home by Mr. Alfred Everett from Surigao, a small island off the north-east extremity of Mindanao. These are now in the Marquis of Tweeddale's collection; and to his kindness I am indebted for being able to figure and describe this lovely Sun-bird, the smallest of the genus.

The five specimens are all labelled males: four are in the full breeding-dress; while the fifth shows no signs of the male dress, nor of immaturity in the structure of its feathers; and as I feel confident that the sex must have been incorrectly marked upon the label, I have here described it as the adult female.



URODREPANIS CHRISTINÆ

URODREPANIS CHRISTINÆ

(SHARP-TAILED SUN-BIRD.)

Æthopyga christinæ, Swinhoe, Ann. & Mag. Nat. Hist. iv. p. 436 (1869); Walden, Ibis, 1870, p. 36, pl. 1. fig. 1; Swinhoe, tom. cit. p. 236; id. P. Z. S. 1871, p. 349.

♂ *ad.* pileo summo et nuchâ saturatè metallicè viridibus: interscapulio nigro: uropygio lætè flavo: alis saturatè brunneis, remigibus olivaceo limbatis: caudâ nigrâ, rectricibus duabus mediis metallicè viridibus, cæteris hoc colore marginatis, tribus lateralibus albo terminatis: facie laterali nigrâ: gutture toto saturatè rubescente: fasciâ mystacali lætè chalybeâ: corpore reliquo subtus olivascente, abdomine et subcaudalibus flavicantibus.

Hab. in insulâ sincensi "Hainan" dictâ.

Adult Male. Forehead, crown, and back of the neck deep metallic green; upper half of the back black, with the appearance of velvet; lower back bright sulphur-yellow; on the centre of the back some loose downy olive plumes, usually parted to each side, but capable of entirely covering the yellow patch on the lower back; upper tail-coverts and two centre tail-feathers, with the exception of their narrow tips, deep metallic green, remainder of the tail black, with partial metallic-green edges to some of the feathers, and with the tips of the three outer ones on each side white; wings dark brown, the coverts black, slightly shaded with olive; quills edged with olive; cheeks and ear-coverts black; chin and throat deep maroon-red, with a steel-blue band from the sides of the chin to halfway down the sides of the throat; breast olive, paler and inclining to yellow on the abdomen and under tail-coverts; bill black, inclining to brown on the lower mandible: legs and irides dark brown. Total length 3·8 inches, culmen 0·6, wing 2, tail 1·8, tarsus 0·55.

HAB. Island of Hainan.

THIS lovely species is a native of Hainan, and is only known by the three specimens brought home by Mr. Swinhoe, who was the first to discover it, in the mountainous regions towards the centre of the island. He writes:—"On the 18th of February, at Shuy-wei-sze (Central Hainan), I fired at a dark-looking Sun-bird moving rapidly about the twigs of a tree, and picked up this lovely species. The same place rewarded me on my return visit with a second specimen. I only saw it once again; and that was on the 23rd of February, near Lingmun, my furthest point among the mountains of the interior. We were away on a visit to a Le tribe, who were cultivating a few small patches of ground by a stream on a hill-slope. Their dirty huts were few in number, gathered together on a terrace about a majestic fig-tree. In rear and by the side of the huts were a few bushes and smaller trees. On an exposed branch of one of the latter a little *Æthopyga* stood forth, and, contrary to the usual saying that birds of beauty have no voice, delivered a charming little short song, which it repeated at intervals. I sought in vain for the female. I did not meet with the species again in Hainan." He further remarks that, according to his notes made on the spot, the tongue was furnished with a brush at the tip. I think,

however, he must have made some mistake; for no other species of the family Cinnyridæ is known to possess this peculiar formation of the tongue, which is so characteristic of the family Meliphagidæ.

All the specimens which Mr. Swinhoe collected in February are males in the finest possible plumage; so that I think we may safely conjecture that this is the season of the year at which they breed. I have felt constrained to place this species in a separate genus, on account of the well-marked character presented by the very peculiar form of the centre tail-feathers; but that it is very closely allied to *Æthopyga* is shown in its general structure and the arrangement of its colours, especially in the bright yellow lower back, and in the long downy plumes in the centre of the back, which at times completely cover the yellow patch.

The genus *Urodrepanis* may be thus characterized:—Similar to *Æthopyga*, but with the two centre tail-feathers abruptly narrowing into very fine points.

The female is, as yet, unknown. The specimen here described is in Mr. Swinhoe's cabinet, and was collected by himself in February 1868.



EUDREPANIS DUYVENBODEL.

. (SANGHIR YELLOW-BACKED SUN-BIRD.)

Nectarinia duyvenbodei, Schl. Ned. Tijdschr. v. Dierk. iv. p. 14 (1871); Meyer, Sitzb. k. Ak. Wissensch. lxx. p. 125 (1874).

Æthopyga? duyvenbodei, Salvad. Ann. Mus. Civic. Genova, ix. p. 57 (1876).

♂ *ad.* fronte et vertice metallicè smaragdineis: pileo laterali et postico cum collo rubris: interscapulio et scapularibus olivascenti-flavis: uropygio lætè flavo: supracaudalibus metallicè violaceis: caudâ nigrâ, rectricibus quibusdam albo terminatis: alis saturatè brunneis, tectricibus minimis et medianis saturatè metallicè bronzino-viridibus, tectricibus majoribus violacco-bronzino marginatis: remigibus angustè olivascenti-flavo limbatis: subtùs lætè flavus, pectore medio paullò latiore.

♀ *ad.* suprâ olivascenti-flava: capite colloque magis olivascentibus: dorso postico, uropygio et supracaudalibus magis flavicantibus: capite laterali pileo concolori, supercilio angusto flavo: alis saturatè brunneis, tectricibus latè olivascenti-flavo marginatis, remigibus hòc colore angustius limbatis: caudâ nigrâ, rectricibus externis quibusdam albo terminatis: subtùs lætè flava.

Hab. in insulis "Sanghir" dictis.

Adult Male. Forehead and crown metallic emerald-green; in front of the eyes and the eyelids yellow; sides and back of the head and neck brick-red; upper back and scapulars olive-yellow; lower back rich gamboge-yellow; upper tail-coverts metallic violet; tail black, some of the outer feathers with white tips; wings dark brown; the least and median series of wing-coverts deep metallic bronzy green; the greater series of wing-coverts edged with violet-bronze; the quills very narrowly margined with olive-yellow; underparts rich gamboge-yellow, rather deeper on the centre of the breast; on the crop a few of the feathers have indications of narrow orange-red bars; under surface of the wings brown with the inner margins of the quills and the coverts white, the latter tinted with yellow; bill and legs black; irides dark brown. Total length 4·4 inches, culmen 0·7, wing 2·25, tail 1·55, tarsus 0·65.

Adult Female. Upper parts olive-yellow, the head and neck more olive, lower back and upper tail-coverts more yellow; sides of the head the same colour as the crown, with a narrow yellow eyelid; wings dark brown, the coverts broadly edged with olive-yellow, the quills more narrowly so with the same colour; tail black, some of the outer feathers with white tips; upper parts rich gamboge-yellow with the sides of the crop olive; bill and legs black; irides dark brown. Total length 3·6 inches, culmen 0·65, wing 2·0, tail 1·35, tarsus 0·65.

HAB. Sanghir Islands.

THE present bird belongs to Mr. Sharpe's genus *Eudrepanis*, which was first characterized by him in this work in February 1877. The species may be readily recognized by the yellow rump, square tail, and metallic-coloured wing-coverts, which characters combined are only found in this species and in *E. pulcherrima*. To distinguish these two birds apart it is sufficient to remark that in the present one the sides and back of the head and neck are red.

This beautiful species is confined to the Sanghir Islands, where it was first discovered by M. Jonkhur van Duyvenbode, and has since been procured there by Hoedt, Meyer, and Bruijn. All the latter gentleman's specimens were collected on the small island of Petta; and a pair of these I have here figured and described.

Count Salvadori (*l. c.*) observes that three female specimens which he has examined are all slightly smaller than the males; and he points out that Dr. Meyer has in his description mistaken the female of *C. sanghirensis* as belonging to this species. He further remarks that it does not appear to him right to retain this species in the genus *Æthopyga*, differing, as he observes, in the form of the tail, in the metallic colouring of the wing-coverts, and in the underparts being yellow; but he thinks that it should form the type of a genus intermediate between *Æthopyga*, *Anthreptes*, and *Chalcoparia*.

For my own part, I see no particular affinities between this genus *Eudrepanis* and *Anthreptes* and *Chalcoparia*; but if we compare it with any group besides *Æthopyga*, it may perhaps present characters nearest to *Nectarophila*, Reichb., as I have already remarked in my article upon *E. pulcherrima*.

I am indebted to Count Salvadori for his kindness in lending me a pair of this Sun-bird for the purposes of describing and figuring in the present work.



EUDREPANIS PULCHERRIMA.

(SHORT-TAILED YELLOW-BACKED SUN-BIRD.)

Æthopyga pulcherrima, Sharpe, Nature, 3rd August, 1876, p. 297.

♂ *ad.* suprâ olivacco-viridis, uropygio lætè flavo, lateraliter fasciis duabus plumosis olivaceis celato : fronte et sincipite, genis et regione paroticâ superiore lætè chalybeis : tectricibus alarum minimis et medianis metallicè chalybeo-viridibus, majoribus etiam hâc colore limbatis : remigibus saturatè brunneis, olivaceo marginatis : tectricibus supracaudalibus caudâque metallicè chalybeo-viridibus : subtùs lætè flavus, plagâ pectorali miniatâ ornatus : rostro pedibusque nigris : iride saturatè brunneâ.

Hab. in insulâ philippinensi "Basilan" dictâ.

Adult Male. Forehead, front half of the crown, cheeks, and ear-coverts steel-blue ; back of the head and neck, upper back, and scapulars olive-green ; on the middle of the back a thick tuft of loose downy olive-coloured feathers, capable of covering the lower back, which is bright yellow ; upper tail-coverts and a broad edging to the tail-feathers metallic bluish green ; wings dark brown, the least and median series of wing-coverts and a broad edging to the greater coverts rich metallic bluish green ; quills margined with olive ; underparts uniform bright yellow, with the feathers on the middle of the crop edged with red, forming a large, nearly circular, spot ; bill and legs black ; irides dark brown. Total length 3·5 inches, culmen 0·75, wing 1·8, tail 1·05, tarsus 0·55.

HAB. Island of Basilan, in the Philippine archipelago.

THIS beautiful species, one of the recent novelties brought home from the Philippine Islands by Dr. Steere, is closely allied in general plumage and structure to the genus *Æthopyga*, possessing, as it does, the tuft of loose downy feathers on the middle of the back which partially cover the yellow patch on the rump ; but it differs in possessing a short square tail, instead of the well-known elongated tail of *Æthopyga*. It is perhaps most nearly allied to *Urodrepanis christinae* from Hainan, and appears to prove the affinity which exists between *Æthopyga* and the "Nectarophila" section of the genus *Cinnyris*.

Mr. Sharpe writes to me that this species should, in his opinion, certainly be placed in a distinct genus, for which he proposes the following diagnosis :—

EUDREPANIS, gen. nov., affinis *Æthopygæ* sed caudâ integrâ, brevior, et fasciis plumosis ut in genere *Æthopygâ* ad latera dorsi inferioris positâ distinguendum.

Dr. Steere during his successful travels in the Philippines collected over forty new species of birds, five of which belong to the present family, thus raising the number of Sun-birds known to inhabit these islands to eight, viz. the present species, *Æthopyga shelleyi*, *Æ. magnifica*, *Cinnyris speratus*, *C. jugularis*, *Anthreptes malaccensis*, *A. chlorogastra*, and *Arachnothera dilutior*. Of the present bird the type specimen alone is known, which my courteous friend Dr. Steere most kindly placed at my service, and of which I have given two figures on the Plate. The type appeared to be in fully adult plumage, and was in a beautiful state of preservation.



EUDREPANIS DUBIA.

(DINAGAT YELLOW-BACKED SUN-BIRD.)

Æthopyga dubia, Tweeddale, P. Z. S. 1878, p. 112.

♂ *imm.* suprâ olivascenti-viridis, tectricibus alarum minimis dorso concoloribus: tectricibus reliquis remigibusque fuscescenti-nigris dorsi colore lavatis: uropygio lætè sulfurco: supracaudalibus olivascenti-viridibus: rectricibus nigris bronzino-viridi marginatis et albido terminatis: corpore subtus sulfurco, genis et gutture pallidiùs flavis: subalaribus albis: remigibus infrâ nigris intus albidis: rostro et pedibus saturatè brunneis: iride brunneâ.

♀ *ad.* mari similis, sed pileo et regione paroticiâ saturationibus et brunnescentioribus: genis cinerascens: rectricibus bronzino-viridi latè marginatis: mento gulâque albidis vix flavo tinctis: rostro nigro: pedibus pallidè brunneis: iride lætè rubrâ.

Hab. in insulâ Philippinensi "Dinagat" dictâ.

Immature Male. Upper parts olive-green; wings dusky black with all the feathers broadly edged with olive-green; lower back sulphur-yellow; upper tail-coverts olive-green; tail black with the edges of the feathers glossed with bronzy green and with broad pale ends to some of the outer feathers; underparts sulphur-yellow with the cheeks and the upper half of the throat slightly paler yellow; under surface of the wings black, with the inner margins of the quills and the coverts white; bill and legs dark brown; irides brown. Total length 3·3 inches, culmen 0·7, wing 1·85, tail 1, tarsus 0·55.

Adult Female. Similar in plumage to the immature male, excepting that the upper half of the head as well as the ear-coverts are darker and browner; the cheeks ashy brown; tail-feathers broadly edged with bronzy green; chin and throat white very faintly tinted with yellow; bill black; legs light brown; irides bright red. Total length 3·25 inches, culmen 0·75, wing 1·8, tail 1, tarsus 0·55.

HAB. Island of Dinagat, in the Philippines.

THE Marquis of Tweeddale, in a recent article upon the birds collected by Mr. Everett on Dinagat Island, describes the present species under the title of *Æthopyga dubia*, founded upon two specimens labelled respectively "immature male" and "female," from which I have also taken my above descriptions, and have figured the "female."

The sexes ascribed to these specimens by Mr. Everett appear to me to be open to doubt; and I am also sceptical as to the species being really new. It evidently belongs to the genus *Eudrepanis*; and the general colouring, as well as the measurements, agree perfectly with what we should expect to find in the female and immature male of *Eudrepanis pulcherrima*, of which only the adult male was hitherto known; but it is impossible, at the present time, to assert positively that they do belong to that species or that they are really distinct; and this is one of

the great disadvantages which arise from describing a species from specimens in imperfect or female plumage.

Should my surmise be correct, that the present birds belong to *E. pulcherrima*, that species must range at least along the entire northern coast of Mindanao, the large island which intervenes between Dinagat and Basilan, where Dr. Steere first discovered *E. pulcherrima*.



CHALCOSTETHA INSIGNIS.

(MAKLOT'S SUN-BIRD.)

Nectarinia pectoralis, Temm. Pl. Col. 138. fig. 3 (1823, nec Horsf.); Schl. & Müll. Verhand. Zool. Aves, p. 57, pl. 9. fig. 2 (1846).

Cinnyris pectoralis, Less. Man. d'Orn. ii. p. 33 (1828).

Nectarinia calcostetha, Jard. Monogr. Sun-birds, p. 263 (1842).

Nectarinia insignis, Jard. tom. cit. p. 274 (1842, ex Temm.); Gray, Gen. B. i. p. 98 (1847); Gould, P. Z. S. 1865, p. 663; id. B. Asia, part 19. pl. 5 (1867).

Cinnyris macklotii, Bp. Consp. Av. i. p. 408. no. 44 (1850, ex Temm.).

Chalcostetha pectoralis, Cab. Mus. Hcin. i. p. 103 (1850).

Chalcostetha macklotii, Reichb. Handb. Scansoriæ, p. 286. no. 662, pl. 572. figs. 3898-99 (1854).

Arachnechthra chalcostetha, Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 746 (1856-58).

Nectarinia macklotii, Sclat. P. Z. S. 1863, p. 220.

Promerops pectoralis, Gray, Hand-l. B. i. p. 110. no. 1354 (1869).

Arachnothera insignis, Gray, tom. cit. p. 112. no. 1384.

Chalcostetha insignis, Walden, Ibis, 1870, p. 44; Salvad. Ann. Mus. Civic. Genov. v. p. 177 (1874).

Nectarinia porphyroloma, Brüggem. Abhandl. nat. Ver. Bremen, v. p. 73 (1876).

♂ *ad.* niger: pileo summo metallicè viridi: tectricibus alarum minimis et medianis, scapularibus, dorso postico, uropygio et supracaudalibus metallicè viridibus lilacino lavatis: rectricibus metallicè violaceo viridique limbatis: gutture medio et præpectore lætè cupreis: mento et gutturis lateribus et pectore summo violaceis chalybeo nitentibus: fasciis pectoralibus lætè flavis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* pileo nuchâque brunnescenti-cinereis: dorso et scapularibus flavicanti-olivaceis: alis saturatè brunneis, rectricibus remigibusque flavicanti-olivaceo limbatis: caudâ nigrâ, rectricibus albo terminatis, externis latius: facie laterali et corpore subtus albis, pectore medio sulfurco lavato: alis infrâ brunneis, tectricibus alarum et pogoniis internis remigum albis.

Hab. in regione Indo-Malayanâ.

Adult Male. Black; forehead and crown metallic green; least and median series of wing-coverts, scapulars, lower half of the back and upper tail-coverts metallic green, strongly glossed with lilac: remainder of the wings brownish black, with the greater coverts partially edged with metallic violet; tail black, the feathers partially edged with metallic violet and green; centre of the throat and the crop rich copper-colour; sides of the chin and throat and the entire chest metallic lilac; pectoral tufts rich yellow; abdomen, under tail-coverts, and under wing-coverts black; remainder of the under surface of the wings brown; bill and legs black; irides dark brown. Total length 4.75 inches, culmen 0.8, wing 2.4, tail 2.25, tarsus 0.6.

Adult Female. Forehead, crown, and nape brownish ash-colour; back and scapulars yellowish olive; wings dark brown, with the least and median series of coverts and the edges of the other feathers yellowish olive; tail black, the edges of the feathers with a metallic gloss, their ends white, broadest towards the outer feathers; underparts as well as the cheeks and ear-coverts white, strongly shaded with sulphur-yellow down the centre of the breast; undersurface of the wings brown, with the inner margins of the quills and the coverts white, the latter shaded with sulphur-yellow at the edges of the wings. Total length 4·6 inches, culmen 0·65, wing 2·1, tail 1·75, tarsus 0·55.

Male in moult. Forehead, crown, and back of the neck deep ashy brown with a few metallic green feathers; mantle black; least and median series of wing-coverts, scapulars, lower half of the back, and upper tail-coverts metallic green, glossed with lilac, and mottled with ashy brown; greater wing-coverts black; quills brownish black with yellowish olive margins; tail black with white ends to all but the centre feathers; chin and throat ashy white, mottled with copper-coloured feathers down the middle; centre of the breast white; flanks and under tail-coverts grey; on the sides of the chest two large patches of black and metallic lilac; pectoral tufts bright yellow; thighs brownish black. Total length 4·75 inches, culmen 0·8, wing 2·25, tail 1·7, tarsus 0·6.

HAB. Southern Tenasserim and the Malay peninsula, Penang, Sumatra, Java, Borneo, Labuan, and Celebes.

I RETAIN this species in the genus *Chalcostetha*, of which it is at present the only representative. The form of its tail is very similar to that of many of the *Æthopyga*; but in its general characters it is more closely allied to *Cinnyris*. In its colouring it somewhat resembles the members of the "Hermotinia" group; and like them it has the frontal feathers extending onto the membrane which covers the nostrils; but it differs from all these last-named Sun-birds by the large bright yellow pectoral tufts, by the brilliant copper-colour of the throat, which is entirely surrounded by a band of metallic lilac, and by the chest being also adorned with that latter colour.

The present species has a somewhat wide range. The locality Siam I have, however, omitted, as it is only entered as doubtful by the Marquis of Tweeddale (Ibis, 1870, p. 44), on the authority of a specimen in the British Museum, which I myself have failed to find, and think it possible that it has been discovered to be an error in locality which has since been corrected, though Mr. Sharpe informs me that he does not remember any such alteration being made since his appointment.

Messrs. Hume and Davison write to me:—"This species swarms in the cocoa-nut plantations at Singapore; any number were procurable there in August, September, and October; but it was observed nowhere else in the Malay peninsula, except at Copah (Junk Ceylon), where several were seen haunting the mangrove swamps on the 4th of December, the mangrove being then in flower. Curiously enough, we searched in vain for this species day after day in the extensive cocoa-nut plantations of Malacca and its neighbourhood, and other localities intervening between Copah and Singapore.

"Further north, again, on the 18th of November, a pair of this species was seen, and the female shot, as usual feeding on the cocoa-nut flowers, at the north-western corner of the island of Patoe, immediately opposite to Mergui. We must therefore include Southern Tenasserim in its range.

"At Singapore it was, excluding *Anthreptes malaccensis*, the most common Sun-bird. All

that has been said of *Æ. cara* would equally apply to this species; but its note differs considerably, in being a sharper one, sounding like the word *chin, chin, chin* very often repeated. We measured a large series of this species in the flesh.

“*Male*. Length 5·25 to 5·75 inches, expanse 7·35 to 7·75, tail from vent 2 to 2·75, wing 2·35 to 2·5, tarsus 0·5 to 0·6, bill from gape 0·8 to 0·9; weight 0·35 to 0·4 oz.

“*Female*. Length 4·85 to 5·25 inches, expanse 6·95 to 7·25, tail from vent 1·75 to 1·95, wing 2·12 to 2·35, tarsus 0·5 to 0·55, bill from gape 0·8 to 0·85; weight 0·3 to 0·35 oz.

“The legs and feet are black, in some brownish black; the bill is black, and the irides brown.

“We suppose, though we do not know it for certain, that the males of this species put on a much duller non-breeding plumage, as we have several specimens killed at the end of October which appear to be doffing the brilliant garb in which we found the great majority of the males at that time. These may of course be young birds; but to judge from the size of the bill they are adult.”

Two of these specimens, collected at Singapore, Mr. Hume has kindly forwarded to me for examination: one, procured in October, I have here described as the “male in moult,” and I believe to be an adult bird; the other differs only in the upper part of the head being slightly shaded with olive, and in the throat and chest being washed with yellow; this specimen I suspect to be the young male assuming the perfect plumage for the first time.

From Penang it has been recorded by Mr. Gould (P. Z. S. 1865, p. 663). Temminck's type came from Java; and it has likewise been recorded from there and from Sumatra by Müller. In Borneo it is widely distributed, having been collected at Banjermassing by Motley, at Sarawak by Doria and Beccari, and on the north-west coast by Mr. Low. According to Mr. Motley (P. Z. S. 1863, p. 220) it is found also in Labuan, where it frequents chiefly the flowers of the Laban (*Vitex tomentosa*).

Dr. Brüggemann informs me that the two birds from Celebes, procured by Von Rosenberg, which he provisionally entered (*l. c.*) under the title of *Nectarinia porphyrolæma*, undoubtedly belong to this species. He has shown me a description of this specimen in which he mentions the pectoral tufts as yellow, the throat copper-colour, entirely surrounded by a band of lilac, which colour extends over the chest. This clearly shows that these birds must be referred to the present species; and we therefore have to extend the range of *C. insignis* to Celebes, unless we doubt the authenticity of Von Rosenberg's locality, which I consider we should not be justified in doing.

The Marquis of Tweeddale (Ibis, 1870, p. 45), after quoting M. Montbeillard's description, from which Gmelin took his diagnosis of *Certhia manillensis*, observes:—“Were it not for the alleged Philippine origin, I should not hesitate to refer *C. insignis* (Jard.) to *C. manillensis*, Gm. I have not entered *C. manillensis*, Gm., in the synonymy of this species, as I consider it should be passed over as a name that cannot be actually determined as referring to any known species. *Nectarinia pectoralis*, Temm., though belonging to this species, must be set aside, as that name has previously been employed for another species; and *N. chalcostetha*, Jard., cannot be used, as that title is employed for the genus.”

Schlegel and Müller (*l. c.*) figure the female as well as the nest and egg of this species.

This nest was composed of grass and bark-fibres rather loosely put together, and was purse-shaped, with a hole near the top, and was suspended from a bough. The egg figured is of a brownish lilac-colour with a dark zone near the thick end, and is very regularly marked all over with black streaks.

The adult male and female I have here figured and described are from Malaccan specimens in the collection of the Marquis of Tweeddale.



CINNYRIS GRAYI.

CINNYRIS GRAYI.

(GRAY'S SUN-BIRD.)

Nectarinia grayi, Wallace, P. Z. S. 1865, p. 479; Brügg. Abhandl. Ver. Bremen, v. p. 72. no. 79 (1876).

Promerops grayi, Gray, Hand-l. B. i. p. 110. no. 1359 (1869).

Nectarophila grayi, Walden, Ibis, 1870, p. 42, pl. 1. fig. 2; id. Tr. Zool. Soc. viii. p. 71 (1874); Salvad. Ann. Mus. Civic. Genova, vii. p. 660. no. 39 (1875).

Hermotimia grayi, Salvad. Atti R. Acc. Sc. Torino, xii. p. 310 (1877).

♂ *ad.* fronte et vertice viridiscenti-aureis: genis, regione parotica, et collo laterali et postico nigris: tergo summo saturatè rubro: tectricibus alarum minimis et scapularibus basaliter chalybeis: dorso postico et supracaudalibus etiam chalybeis: alis et scapularibus aliter nigris, tectricibus alarum medianis quibusdam rubro variis: caudâ indigotico-nigrâ, rectricibus chalybeo marginatis: mento gulâque metallicè lilacinis, utrinque metallicè chalybeo marginatis: præpectore saturatè rubro: corpore reliquo subtùs nigro.

♀ *ad.* suprâ cinerascanti-brunnea, tergo, scapularibus, et tectricibus alarum minimis et medianis olivaceo lavatis: alis saturatè brunneis, olivascanti-flavo limbatis: supracaudalibus caudâque nigris, rectricibus externis albo terminatis: mento gulâque albis: pectore et subcaudalibus pallidè flavis.

Hab. in insulâ Celebensî.

Adult Male. Forehead and crown golden, slightly shaded with green; cheeks, ear-coverts, sides and back of the neck black; upper back deep red; least series of wing-coverts, basal portion of the scapulars, the lower back, and the upper tail-coverts steel-blue with green and violet reflections; remainder of the wings and scapulars black, with some of the median series of coverts mottled with deep red; tail blue-black, the feathers edged with the same steel-blue as the lower back; chin and throat metallic lilac, with a well-defined narrow steel-blue margin on each side; front of chest deep red; remainder of the under surface of the body and wings black; bill and legs black; irides dark brown. Total length 4·25 inches, culmen 0·65, wing 2·15, tail 1·6, tarsus 0·55.

Adult Female. Upper parts ashy brown, with the entire back, the scapulars, and the least and median series of wing-coverts shaded with olive; remainder of the wings dark brown, with the greater series of coverts and the quills broadly edged with olive-yellow; upper tail-coverts and the tail black, the latter with white tips to some of the outer feathers; chin and throat white; breast and under tail-coverts pale yellow; under surface of the wings brown, with the coverts and the inner margins of the quills white, the former shaded with sulphur-yellow. Total length 3·6 inches, culmen 0·6, wing 2·0, tail 1·3, tarsus 0·55.

Young Male. Similar in plumage to the adult female, excepting that the forehead and crown are shaded with olive, and the chin and throat are washed with sulphur-yellow. Total length 4·3 inches, culmen 0·65, wing 2·1, tail 1·4, tarsus 0·55.

Male in moult. Similar in plumage to the adult female, excepting that the upper parts are rather more

strongly shaded with olive, and the metallic parts are beginning to appear on the crown, tail, and sides of the throat.

HAB. Celebes.

THE members of the "Black" group, separated by many authors from *Cinnerys* under the generic title *Hermotimia*, form a very natural division of the Sun-birds. The metallic portions of their plumage are confined to the crown, throat, wing-coverts, scapulars, lower back, and margins of the tail-feathers; and in these characters, as well as from the frontal feathers extending onto the membrane which covers the nostrils, they are closely allied to the "*Nectarophila*" group—but may be readily distinguished from that section by the larger size, especially of their bills and tails, and by their general black coloration. The only exception to this rule is found in the present species (*C. grayi*), which is slightly aberrant in its style of coloration.

The above-named groups inhabit distinctly different areas, the *Hermotimiae* being restricted to the Celebean and Papuan subregions.

The present group may with advantage be further divided into two sections:—

1st. Those species with the metallic portions of the wings and lower back steel-blue.

2nd. Those species with the above-named parts of the plumage metallic green (often more or less shaded with blue).

The first of these sections, to which the present species belongs, is restricted to the Celebean subregion and to the Northern Moluccas.

From the other members of this section the birds restricted to the Celebes and Sanghir islands are distinguished by having their metallic throats margined on each side by a sharply defined steel-blue band, and by the median series of wing-coverts and the greater portion of the scapulars being non-metallic. The present species may be readily distinguished by the red colour of the upper back and front of the chest.

On account of the red colouring, it has been placed by some naturalists in Reichenbach's genus *Nectarophila*, which constitutes my second group of the genus *Cinnerys*; but I do not consider this to be its natural position, as it agrees perfectly with the members of the present section in its general structure, especially in the form and length of the bill and tail.

It is entirely confined to the island of Celebes, where it has been collected at Tondano and Menado by Mr. Wallace, who named this bird in honour of the late Mr. G. R. Gray. Dr. Brüggemann (*l. c.*) describes the female and young male as similar in plumage, "with the upper parts olive-green, and the underparts sulphur-yellow; the wings dark brown with bright olive-green margins to the feathers; the tail black, with the two outer feathers with white tips." He further observes that during the time the young bird gradually attains its brilliant plumage it undergoes a remarkable change, the upper part of the head being then ashy grey and the throat white.

I have examined three fully plumaged males, two males in partial moult, one young male, and two adult females. The specimen which I have here figured and described as the adult female is the only one of these in which the sex is not indicated on the label; but in the British Museum there are two specimens collected by Mr. Wallace at Menado, one being labelled "female" and the other "young male:" the former agrees perfectly with the specimen I have

figured and described as the adult female, while the latter is the specimen from which I have taken my description of the immature male.

With this series of specimens before me, I think I may safely refer the plumage described by Dr. Brüggemann as that of the "female as well as of the young," to young birds only. As his specimens were no doubt carefully sexed at the time, it would appear that the young female, as well as the young male, possesses a yellow throat. Since writing the above, Dr. Meyer has kindly forwarded to me, for examination, two yellow-throated specimens collected by him at Menado, and labelled "female:" these, from the texture of the feathers, are undoubtedly young birds.

The only species of this group which has the entire underparts yellow in the adult female is *C. sangirensis*; but here we find the throat also yellow in the males during their moult. In *C. auriceps* the adult female has the throat white; but in very young specimens, whose feathers have not yet quite passed out of the down, the throat is yellow; and this appears to be generally the case in young birds of this group.

The adult male I have figured and described is from one of Mr. Wallace's specimens in the Marquis of Tweeddale's collection.



CINNYRIS PORPHYROLÆMUS.

(CELEBEAN BLACK SUN-BIRD.)

Nectarinia aspasia (pt.), Schl. & Müll. Verhand. Zool. Aves, p. 58 (1846).

Nectarinia porphyrolæma, Wallace, P. Z. S. 1865, p. 479.

Promerops porphyrolæma, Gray, Hand-l. B. i. p. 110. no. 1360 (1869).

Chalcostetha porphyrolæma, Walden, Ibis, 1870, p. 46; id. Tr. Z. S. viii. p. 71 (1874); Meyer, Sitz. k. Ak. Wissensch. Wien, lxx. p. 122 (1874).

Hermotimia porphyrolæma, Salvad. Atti R. Acc. Sc. Tor. x. pp. 208, 232 (1874); id. Ann. Mus. Civic. Genova, vii. p. 660. no. 38, pl. 18. fig. 3 (1875); id. Atti R. Acc. Sc. Torino, xii. p. 310 (1877).

♂ *ad.* niger, saturatè indigotico nitens: pileo summo metallicè aurato-viridi: tectricibus alarum minimis, dorso postico et supracaudalibus chalybeis, vix violaceo nitentibus: rectricibus nigris, extùs chalybeis: mento gulâque metallicè rubescenti-lilacinis: strigâ mystacali viridescente, chalybeo lavatâ: rostro nigro: pedibus et iride saturatè brunneis.

♀ *ad.* pileo postico et cervice cineraceis: dorso, scapularibus et tectricibus alarum minimis olivaceis: alis aliter saturatè brunneis, plumis latè olivaceo marginatis, remigibus flavicanti-olivaceo limbatis: rectricibus nigris, plumis albo terminatis, externis latiùs: gulâ albâ: pectore, abdomine et subcaudalibus sulfureis: alis infrâ brunneis, intùs albidis: subalaribus albis, angustè flavo limbatis.

Hab. in insulâ Celebensi.

Adult Male. Black with a deep blue gloss; entire crown metallic golden-green; least series of wing-coverts, lower back, upper tail-coverts, and the outer edges of the tail-feathers steel-blue, slightly tinted with violet; chin and throat metallic ruby lilac, with a well-defined greenish shaded steel-blue streak down each side; bill black; irides and legs dark brown. Total length 4·5 inches, culmen 0·7, wing 2·25, tail 1·6, tarsus 0·6.

Adult Female. Upper half of the head and the back of the neck ashy grey; back, scapulars, and the least series of wing-coverts olive; remainder of the wings dark brown, with all the feathers broadly edged with olive, which, on the quills, is of a more yellow shade; tail black, the feathers mostly tipped with white, most broadly so on the outer ones; chin and throat white; breast, abdomen, and under tail-coverts sulphur-yellow; under surface of the wings brown, with the inner margins of the quills and the coverts white, the latter partially washed with pale yellow. Total length 4·2 inches, culmen 0·65, wing 2·05, tail 1·4, tarsus 0·6.

Male in moult. Similar in plumage to the adult female, excepting that the metallic colours begin to show on the rump, upper tail-coverts, and tail, and on each side of the throat a well-defined metallic moustachial streak; the breast is much paler, the yellow fading almost into white on the sides of the body and on the under tail-coverts. Total length 4 inches, culmen 0·6, wing 2·25, tail 1·5, tarsus 0·6.

HAB. Celebes.

THIS Sun-bird is most nearly allied to another Celebean form (*C. grayi*), from which it differs in

having the mantle and chest black instead of red. These two species may be readily distinguished from the other members of the "*Hermotimia*" group by the steel-blue moustachial line on each side of their metallic lilac throats.

This is by no means a common bird in collections; and, owing to the great resemblance between the members which constitute this group, there was much confusion until Count Salvadori, in his valuable paper upon the genus *Hermotimia* of Reichenbach (*l. c.*), ably pointed out their distinctive characters.

My descriptions of the adult male and of the male in moult are taken from Macassar specimens, the former from the type in the British Museum, collected by Mr. Wallace, the latter from one of Dr. Meyer's specimens.

The adult female I procured from a dealer out of a collection from Celebes. The measurements of the type, as well as of one of Dr. Meyer's specimens of an adult male from Macassar, are a trifle smaller than the one I have figured, which was collected by Dr. Meyer in the Togian Islands in the Gulf of Tomine and is now in the Marquis of Tweeddale's cabinet. In this specimen the wings measure 2.5 inches; but in the coloration of the plumage there is no difference.

The species has also been recorded by Count Salvadori from Kandari, on the south-west coast of Celebes, where Signor Beccari procured three males.



CINNYRIS SANGIRENSIS.

CINNYRIS SANGIRENSIS.

(SANGHIR BLACK SUN-BIRD.)

Chalcostetha sangirensis, Meyer, Sitz. k. Ak. Wissensch. zu Wien, lxx. p. 124 (1874);
Sclater, Ibis, 1874, p. 419.

Hermotimia sanghirensis, Salvad. Atti R. Acc. Torino, x. p. 233, pl. 1. fig. 2 (1874); id. Ann.
Mus. Civic. Genova, ix. p. 56. no. 10 (1876); id. Atti R. Acc. Torino, xii. p. 311 (1877).

♂ *ad.* brunnescenti-niger purpureo nitens: pilco summo metallicè aurato-viridi: tectricibus alarum minimis, scapularibus minoribus, dorso postico et supracaudalibus chalybeis: gutture cuprescenti-bronzino, suprâ lateraliter chalybeo marginato.

♀ *ad.* suprâ grisescenti-viridis: remigibus nigricantibus extûs olivascenti-viridi, intûs albido limbatis: caudâ nigrâ, rectricibus externis albo terminatis: subtûs flava, gutture et pectore saturatoribus, abdomine et subcaudalibus albidis.

Hab. in insulis Sanghirensibus.

Adult Male. Brownish black with a purple gloss; the forehead, crown, and nape metallic golden green; least series of wing-coverts, a few of the smaller scapulars, the lower back and upper tail-coverts steel-blue, shaded with violet and green; tail-feathers edged with lilac-bronze; throat coppery bronze, margined with steel-blue on the sides of the chin and upper half of the throat; bill and legs black; irides dark brown. Total length 4·3 inches, culmen 0·65, wing 2·4, tail-1·75, tarsus 0·6.

Adult Female. Upper half of the head and neck, back, and scapulars olive-yellow; upper tail-coverts black; wings dark brown, all the feathers broadly edged with olive-green; tail black, with white tips, broadest on the outer feathers; cheeks yellower than the crown; underparts sulphur-yellow, slightly tinted with olive on the sides of the breast; the under tail-coverts very pale yellow; under surface of the wings brown, with the inner margins of the quills and the coverts white, the latter shaded with yellow; bill, legs, and irides dark brown. Total length 4 inches, culmen 0·6, wing 2·05, tail 1·4, tarsus 0·6.

Male in moult. Similar in plumage to the adult female, excepting that it has a few metallic feathers on the back of the crown; tail-feathers edged with metallic violet; a streak on each side of the throat coppery bronze.

Young Male. Similar to the last, excepting that there are no metallic feathers on the crown, and the chin and throat are strongly shaded with orange-yellow.

HAB. Sanghir Islands.

THIS well-marked species belongs to that section of the "*Hermotimia*" group which comprises species with the metallic portions of the back blue. It may be distinguished from its allies by the general brownish shade of its plumage and by the bronzy copper-colour of its throat, in which latter character it appears to be the species which most nearly approaches to *Chalcostetha*

Like the Celebean forms *C. grayi* and *C. porphyrolæmus*, it has the sides of the metallic throat margined with a distinct band of steel-blue, which is not met with in the other members of this group; and they also resemble each other in the absence of metallic colouring on the scapulars and median series of the wing-coverts; but this latter character is not confined to these three species.

The present bird was first described by Dr. Meyer from specimens collected by himself at Siao, one of the Sangir or Sanghir Islands, a small group situated to the north of Celebes; and it appears to be exclusively confined to that archipelago.

Count Salvadori has more recently received a large series of forty specimens obtained in the island of Petta by Bruijn, which he divides into nine varieties of plumage. The first is the fully adult male similar to the specimen in my own collection, which I have figured on the same Plate with *C. porphyrolæmus*; this specimen was collected by Duyvenbode in Siao in 1866. The next five are in the gradual changes of plumage between the young and adult male, and offer nothing out of the common in their mode of moult. The last three plumages mentioned are exhibited in my second illustration of this species, and represent the adult female with the pale yellow throat, and two plumages of the male: one I have designated "male in moult" with the throat of a similar yellow to that of the female; the other, "young male," with the orange shade on the throat. It appears to me probable that these two plumages should be referred respectively, one to the adult male in moult, the other to the young male prior to its first assumption of the full dress; and I would therefore refer the more orange throat to the younger bird.

In this latter dress, according to Count Salvadori, were the specimens which Dr. Meyer referred to the females of *E. duyvenbodei*; and he further remarks:—"I do not know to what cause can be attributed this orange shade on the upper part of the throat; it is not equally intense in all the specimens, from which I argue that it is a mere variation to which individuals of this species are subject."

This species differs from all the other members of this group, not only in the peculiar colouring of the male, but also in the female not having the head and neck of the grey colour which we find in the other species.

I have retained Dr. Meyer's original spelling of the name, as these islands are marked upon different maps as the Sangir or Sanghir Islands.



CINNYRIS AURICEPS
CINNYRIS MOROTINENSIS

CINNYRIS AURICEPS.

(MOLUCCAN BLACK SUN-BIRD.)

Nectarinia auriceps, Gray, P. Z. S. 1860, p. 348; Wallace, P. Z. S. 1862, pp. 335, 343;

Finsch, Neu-Guinea, p. 163 (1865).

Promerops auriceps, Gray, Hand-l. B. i. p. 110. no. 1357 (1869).

Chalcostetha auriceps, Walden, Ibis, 1870, p. 46; Meyer, Sitz. k. Ak. Wissensch. Wien, lxx. p. 123 (1874).

Hermotimia auriceps, Salvad. Atti R. Acc. Torino, x. pp. 208, 228 (1874); xii. p. 309 (1877).

Nectarinia porphyrolæma, Brügg. Abhandl. nat. Ver. Bremen, v. p. 73. no. 77 (1876).

♂ *ad.* niger, pilco summo virescenti-aurco: tectricibus alarum minimis et medianis, scapularibus, dorso postico, supracaudalibus et rectricum marginibus chalybeis plus minusve violaceo nitentibus: mento gulâque chalybeis dorso postico concoloribus.

♀ *ad.* pileo summo colloque cinerascanti-brunneis: dorso scapularibusque olivaceis: alis saturatè brunneis, pennis omnibus olivaceo marginatis: rectricibus nigris, albo terminatis, duabus centralibus haud apicatis, externis latiùs: mento gulâque albis: pectore, abdomine et subcaudalibus pallidè flavis.

♂ *juv.* similis feminae adultæ, sed pilco colloque postico olivaceo lavatis, mento gulâque pallidè flavis pectori concoloribus.

Hab. in insulis Moluccensibus "Gilolo," "Batchian," "Ternate," "Kaioa," "Tifore," "Sula," et "Celebes" dictis.

Adult Male. Black with a deep blue gloss; the entire crown metallic greenish gold; the least and median series of wing-coverts, scapulars, lower half of the back, and the upper tail-coverts steel-blue, more or less shaded with violet; in some specimens a few of the greater wing-coverts, and in all the tail-feathers, are broadly edged with steel-blue; chin and throat of the same shade of steel-blue as the lower back; bill and legs black; irides dark brown. Total length 4·5 inches, culmen 0·65, wing 2·4, tail 1·8, tarsus 0·6.

Adult Female. Upper part of the head and the back of the neck ashy brown; back and scapulars olive; wings brown, the feathers with broad olive edges, which on the quills have a slightly more yellow shade; tail black with white ends to all but the centre feathers, the white tips broadest on the outer ones; chin and throat white; breast, abdomen, and under tail-coverts pale yellow; under wing-coverts and inner margins of the quills white, the former slightly shaded with sulphur-yellow; bill and legs black; irides dark brown. Total length 4·1 inches, culmen 0·65, wing 2·1, tail 1·6, tarsus 0·55.

Young Male. Very similar to the adult female, but with the upper parts of the head and back of the neck shaded with olive, and the chin and throat pale yellow like the breast. The feathers of the abdomen are of a downy texture, indicative of youth. Total length 3·9 inches, culmen 0·6, wing 2·0, tail 1·4, tarsus 0·55.

Male in moult. Similar to the female, with the metallic portions beginning to show on the crown, upper tail-coverts, and the sides of the throat.

HAB. Moluccas: islands of Gilolo, Batchian, Ternate, Kaioa, Tifore, Sula Islands, and Celebes.

C. auriceps may be readily recognized by the metallic portions of the throat, wings, scapulars, and lower back being of a deep violet-shaded steel-blue, and in the very golden green colour of the crown; in this latter respect it is similar to the Celebean *C. porphyrolæmus*, from which, however, it is distinguished by the colour of the throat and by having the median series of wing-coverts and the scapulars metallic like the lower back.

From the present species I have found it necessary to separate the Morty-Island bird, on account of its much greener crown, which is similar to that of *C. aspasiæ*, and from the metallic portions of the throat, wing-coverts, scapulars, and lower back being greenish, rather than violet-shaded steel-blue.

In the British Museum I have examined adult males from Ternate, Batchian, Kaioa, and Sula Islands, collected by Mr. Wallace; and they all are undoubtedly referable to this species. An adult male in the Marquis of Tweeddale's collection is labelled "Lombock? (Wallace)." The only reason I can see for doubting the locality Lombock for this specimen is, that I cannot find the species mentioned from that locality in any of the numerous articles published upon Mr. Wallace's collections. I have not been able to examine fully adult specimens from Gilolo; but Count Salvadori (*l. c.*) assures me that they are perfectly similar; and it is also recorded from thence by Mr. Wallace (*l. c.*).

Dr. Brüggemann informs me that *C. auriceps* has been collected in Celebes by Dr. Fischer; and this does not appear to me to be at all surprising, as it has been found in the Sula Islands and Tifore. Though it would appear to be improbable, these specimens *may* possibly belong to my new species *C. morotensis*; for Count Salvadori remarks (*l. c.*) that in Count Turati's collection there is a specimen labelled Menado; but this locality he believes to be incorrect. It differs slightly from Gilolo specimens in having the metallic throat much less extended, the crown a little less golden and more green, the wing-coverts, scapulars, rump, and upper tail-coverts, as also the throat, deep steel-blue with a slight greenish reflection. He also examined a similar adult male specimen in the Turin Museum from an unknown locality, and observes that they probably come from a different place from that of the Gilolo bird, and may perhaps constitute a distinct species.

These specimens appear to belong to the same species as the Morty-Island bird; but in the type of that species I do not recognize any character in the shortness of the metallic portion of the throat.

The upper figure in the illustration represents an adult male of this species collected by Mr. Wallace in Batchian, from which specimen my description is also taken, while my lower figure represents the type of the closely allied *C. morotensis*.

The description of the adult female is taken from a Batchian specimen, and that of the young male from a bird from Ternate: both of these were collected by Mr. Wallace, and are in the British Museum.

CINNYRIS MOROTENSIS.

(MORTY ISLAND BLACK SUN-BIRD.)

?*Hermotimia auriceps* (pt.), Salvad. Att. R. Ac. Tor. x. p. 229 (1874).

♂ *ad.* similis *C. auricipiti*, sed pilco aurato-viridi ut in *C. aspasix* colorato: ptilosi chalybeo-viridi nec violaceâ nitente distinguendus.

HAB. in insulâ Moluccensi "Morty" vel "Morotai" dictâ.

Adult Male. Differs from *C. auriceps* only in the much greener shade of the crown, which is of the same colour as in Dorey specimens of *C. aspasix*; the least and median series of wing-coverts, the scapulars, lower back, upper tail-coverts, and the edges of the tail-feathers are greenish-shaded steel-blue, with no lilac shade, excepting on some of the median series of wing-coverts, which are edged with lilac, and the edges of the tail-feathers, which are glossed with violet; the metallic throat is of a uniform deep greenish-shaded steel-blue like the lower back; bill and legs black; irides dark brown. Total length 4.5 inches, culmen 0.7, wing 2.4, tail 1.8, tarsus 0.6.

HAB. Morty Island.

THE type of this species, a fully adult male, was collected by Mr. Wallace in Morty Island, and is now in the British Museum. The specimen bears Mr. Wallace's own label; so that there is no doubt of its having come from the island of Morty, although in the numerous published records of his collections I have failed in finding any mention of a Sun-bird of this group having been obtained by him in that locality.

Like *C. auriceps* the present bird may be distinguished from all the other members of the "*Hermotimia*" group by its having the throat and lower back of the same shade of steel-blue. The characters which separate this bird from *C. auriceps* are the greener crown and the deep green instead of a violet shade to the steel-blue portions of the plume. These characters, if constant, as I suspect they will prove to be, are sufficiently well marked.

It appears to me probable that the specimens mentioned by Count Salvadori (*l. c.*), viz. one in Count Turati's collection and the adult male in the Turin Museum, may belong to this species.



CINNYRIS NIGRISCAPULARIS
CINNYRIS SALVADORII

CINNYRIS NIGRISCAPULARIS.

. (MIOSNOM BLACK SUN-BIRD.)

Hermotimia nigriscapularis, Salvad. Ann. Mus. Civic. Genova, vii. p. 937 (1875); id. Atti R. Acc. Torino, xii. p. 308 (1877).

♂ *ad.* niger, indigotico nitens : pileo toto nuchâque metallicè viridibus : scapularibus alisque nigris, tectricibus minimis paucis marginalibus metallicè cyanescentibus viridi nitentibus : dorso postico, supracaudalibus et rectricum marginibus metallicè cyanescenti-viridibus : mento gulâque chalybeis lilacino nitentibus : rostro pedibusque nigris : iride saturatè brunnea.

♀ *ad.* pileo et collo postico cinerascanti-brunneis : tergo olivaceo : alis saturatè brunneis, plumarum marginibus olivaceis : caudâ nigrâ, rectricibus externis albo terminatis : mento gulâque cinerascanti-albis : corpore reliquo subtùs sulfureo : subalaribus albis, sulfureo lavatis : remigibus infrâ brunneis, intùs versus basin albidis.

Hab. in insulâ Papuanâ "Miosnom" dictâ.

Adult Male. Black with a deep blue gloss ; forehead, crown, and nape metallic green ; wings and scapulars black, with a few only of the least series of coverts towards the angle of the wing metallic bluish green ; lower half of the back, upper tail-coverts and the edges of the tail-feathers metallic bluish green ; chin and throat steel-blue shaded with lilac ; bill and legs black ; irides dark brown. Total length 4 inches, culmen 0.65, wing 2.4, tail 1.65, tarsus 0.6.

Adult Female. Upper part of the head and back of the neck ashy brown ; back olive ; wings dark brown, with the margins of the feathers olive ; tail black, with white ends to some of the outer feathers ; chin and throat ashy white ; breast and under tail-coverts sulphur-yellow ; under surface of the wings brown, with the coverts and the inner margins of the quills white, the former shaded with sulphur-yellow.

HAB. Miosnom, an island in the Bay of Geelvink.

THE present species belongs to the second section of the "*Hermotimia*" group, viz. that in which the metallic portions of the wings and lower back are green. This section may again be split up into two divisions, viz. those species which have the scapulars and median series of wing-coverts black, and those species which have these parts metallic green.

As belonging to the first of these subdivisions we are at present acquainted with three forms—*C. nigriscapularis*, *C. salvadorii*, and *C. proserpinæ*. The first two of these differ from *C. proserpinæ* in the metallic colours on the wings being confined to a portion only of the least series of wing-coverts round the bend of the wing. From *C. salvadorii* the present species differs in its smaller size.

This bird was recognized as a new form by Count Salvadori after the examination of twelve specimens collected by Signor Beccari in Miosnom, one of the small islands in the Bay of Geel-

vink. One of these typical specimens I have figured on the same plate with *C. salvadorii*, in order that their difference in size may be readily compared.

I find in five adult males of this species the following differences in measurements—total length 4 to 4·3 inches, culmen 0·65 to 0·70, wing 2·3 to 2·45, tail 1·4 to 1·65, tarsus 0·6 to 0·65.

Out of the twelve typical specimens mentioned by Count Salvadori (*l. c.*), six were in perfectly adult plumage; two were males in advanced moult; three were young, and the remaining one the adult female here described.

Of the three young birds, one is similar in plumage to the female, but has the crown olive like the back, and the chin and throat tinged with yellow like the breast, but not so pure; in another example the sides of the throat are mottled with metallic colours, and in the third the upper part of the head is greyish olive, and the throat clear pale yellow.

CINNYRIS SALVADORII.

(COUNT SALVADORI'S SUN-BIRD.)

Hermotimia nigriscapularis (pt.), Salvad. Ann. Mus. Civic. Genova, vii. p. 938 (1875).

Hermotimia, sp., Salvad. Atti R. Acc. Torino, xii. p. 308 (1877).

♂ ad. similis *C. nigriscapulari* sed multo major, et partibus metallicis magis cyanescentibus.

Hab. in insulâ Papuanâ "Jobi" dictâ.

Adult Male. Similar in plumage to *C. nigriscapularis*, but considerably larger; the metallic portion of the wings, lower back, upper tail-coverts, and the margins of the tail-feathers slightly bluer. Total length 1·7 inches, culmen 0·75, wing 2·8, tail 1·9, tarsus 0·7.

HAB. The island of Jobi, in the bay of Geelvink.

THE present species is, in my opinion, clearly distinct from *C. nigriscapularis*, being, as the measurements will show, a very much larger bird; and that these relative dimensions may be the better recognized, I have illustrated both species upon the same Plate, the lower figure representing this species.

The island of Jobi, in Geelvink Bay, contains two Sun-birds belonging to this group: the present one, closely allied to *C. nigriscapularis* of the neighbouring island of Miosnom, and *C. jobiensis*, representing *C. aspasia*, from the mainland of New Guinea.

My *C. salvadorii* is founded upon two specimens collected by Bruijn at Ansus; one of these is in such bad condition that measurements would be unreliable, as the wings and tail are formed of partially grown feathers; nevertheless it considerably exceeds in all its dimensions the numerous specimens which I have examined of *C. nigriscapularis*. The types of *C. salvadorii* are the specimens mentioned by Count Salvadori (*l. c.*) in the latter portion of his article upon *Hermotimia nigriscapularis*, where he observes:—"In Bruijn's collection there are two specimens from Ansus very similar in colour to those from Miosnom, and having the wing-coverts similar, but differing in their much larger dimensions. They should, I believe, belong to a distinct species, which, however, I shall merely content myself with noticing."

As, in my opinion, the Jobi bird is specifically distinct from *C. nigriscapularis*, I venture to attach Count Salvadori's name to the species in acknowledgment of the great services he has rendered to our knowledge of Moluccan and Papuan ornithology.



CINNYRIS PROSERPINÆ.

(BOURU BLACK SUN-BIRD.)

Nectarinia proserpina, Wallace, P. Z. S. 1863, p. 32; Finsch, Neu-Guinea, p. 163 (1865).

Promerops proserpina, Gray, Hand-l. B. i. p. 110. no. 1358 (1869, err.).

Chalcostetha proserpina, Walden, Ibis, 1870, p. 46; Meyer, Sitz. k. Ak. Wissensch. zu Wien, lxx. p. 123 (1874).

Hermotimia proserpina, Salvad. Atti R. Acc. Torino, x. pp. 208, 230 (1874), xii. p. 307 (1877).

♂ *ad.* niger: pileo saturatè smaragdineo: tectricibus alarum minimis, dorso postico et supracaudalibus metallicè viridibus chalybeo nitentibus: scapularibus et tectricibus medianis nigris: caudâ nigrâ, rectricibus chalybeo marginatis: gulâ metallicè violaceâ chalybeo nitente, clariùs lateraliter.

♀ *ad.* pileo et collo postico cinerascens: dorso, scapularibus, supracaudalibus, remigum rectricumque marginibus olivaceo-flavis: alis caudâque aliter saturatè brunneis: rectricibus quibusdam externis albo terminatis: mento gulâque pallidè cineraceis, pectore et subcaudalibus olivaceis, sulfurco lavatis.

HAB. in insulâ "Bouru" dictâ.

Adult Male. Black, with a deep blue gloss; crown deep metallic emerald-green with a bluish gloss; least series of wing-coverts, lower back, and upper tail-coverts metallic green, glossed with steel-blue; scapulars and median series of wing-coverts black, remainder of the wings brownish black; tail blue-black, the feathers edged with steel-blue; throat metallic violet, glossed with steel-blue, especially on the sides; bill and legs black; irides dark brown. Total length 5 inches, culmen 0.85, wing 2.5, tail 1.8, tarsus 0.65.

Adult Female. Upper half of the head and back of the neck ashy grey; back and upper tail-coverts and edges of the feathers of the wings and tail olive-yellow, remainder of the wings and tail dark brown; some of the outer tail-feathers with broad white ends; chin and throat pale ashy; breast and under tail-coverts olive-shaded yellow; under surface of the wings brown, with the inner margins of the quills and the coverts white, the latter tinted with yellow. Total length 4.3 inches, culmen 0.8, wing 2.2, tail 1.5, tarsus 0.6.

HAB. The island of Bouru.

THE black Sun-bird which we find in the island of Bouru belongs to that division of the "*Hermotimia*" group in which the metallic portions of the wings and lower back are green, and in which the scapulars and median series of wing-coverts are black. It differs from *C. nigroscapularis* and *C. salvadorii* by possessing a greater amount of metallic green on the wings, and in the somewhat different shade of the green of these parts and on the lower back.

It is a rare species in collections, which may probably be accounted for by its being limited in its range to the island of Bouru. I have only been able to examine four adult males and three females, all of which were collected by Mr. Wallace; in these I find the colouring and measurements are remarkably constant.

The specimens which I have here figured and described are in the Marquis of Tweeddale's collection.



CINNYRIS ASPASIOIDES
CINNYRIS ASPASIE

CINNYRIS ASPASIOIDES.

. (CERAM BLACK SUN-BIRD.)

Nectarinia aspasia, S. Müll. Natuurl. Gesch. Land- en Volkenk. p. 110 (1843); S. Müll. & Schl. Verh. Nat. Gesch. Aves, p. 58 (1846, part.); Finsch, Neu-Guinea, p. 163 (1865, part.).

Nectarinia aspasioides, Gray, P. Z. S. 1860, p. 348; Pclz. Verh. k. k. zool.-bot. Gesellsch. in Wien, 1872, p. 427.

Cinnyris aspasia, Rosenb. J. f. O. 1864, p. 123 (part.).

Nectarinia aspasinoides, Finsch, Neu-Guinea, p. 163 (1865).

Nectarinia amasia, Finsch, tom. cit. p. 163.

Promerops aspasinoides, Gray, Hand-l. B. i. p. 110. no. 1356 (1869).

Chalcostetha aspasioides, Walden, Ibis, 1870, p. 46; Meyer, Sitz. k. Ak. Wissensch. zu Wien, lxx. p. 123 (1874).

Ptiloturus aspasioides, Gieb. Thes. Orn. i. p. 631 (1872).

Chalcostetha goramensis, Salvad. Ann. Mus. Civic. Genova, vi. p. 85 (1874).

Hermotimia aspasioides, Salvad. Atti R. Acc. Torino, x. pp. 208, 216 (1874), xii. p. 306 (1877).

♂ *ad.* similis *C. aspasiae* sed major: culmine et caudâ longioribus, ptilosi brunnescentiore, pileo minus aureo et cyaneo adumbrato, tectricibus minimis et medianis, scapularibus, dorso postico, supracaudalibus et rectricum marginibus magis cyanescenti-viridibus, his partim purè chalybeis, tectricibus majoribus externis haud metallicè marginatis, gutture purè chalybeo haud lilacino lavato, distinguendus.

♀ similis feminæ *C. proserpinæ*, sed dorso olivaceo sordidiore et pectore pallidiore distinguenda.

Hab. in insulis Moluccensibus australibus.

Adult Male. Very similar to *C. aspasiae*, but larger, especially in the measurements of the culmen and tail; the black portions of the plumage slightly browner; the crown less golden and shaded with blue; the least and median series of wing-coverts, the scapulars, lower back, upper tail-coverts, and margins of the tail-feathers of a bluer green, with a portion of the edges of the tail-feathers almost pure steel-blue; the outer greater wing-coverts with no metallic margins; the throat pure steel-blue with no lilac shade. Total length 4·5 inches, culmen 0·85, wing 2·4, tail 1·7, tarsus 0·6.

Adult Female. Similar in plumage to the female of *C. proserpinæ*, excepting that the olive on the back is duller and the breast whiter. Total length 4·35, culmen 0·75, wing 2·15, tail 1·55, tarsus 0·6.

HAB. Amboyna, Ceram, Goram, Matabello, and Banda?

THE Ceram Black Sun-bird is very similar to *C. aspasiae*, the characters by which it is distinguished being very slight; but they are numerous, as I have shown in my description of the adult

male of this bird, and are perfectly constant. Its most marked features are perhaps its larger size, as shown by the greater length of the culmen and tail, and the throat being pure steel-blue with no lilac shade.

In the British Museum I have compared specimens collected by Mr. Wallace from Ceram, Amboyna, Goram, and Matabello islands; and they all belong undoubtedly to this species; the culmen measured in all the five adult male specimens 0·85, and the tail from 1·7 to 1·9, while in seven fine specimens of *C. aspasia* I have found the measurements never greater than the following—culmen 0·7, tail 1·5.

The *Nectarinia aspasia* mentioned by S. Müller from Banda Island should, no doubt, belong to this species; but as I have not been able to examine a specimen from there. I have entered the locality as doubtful.

In the Marquis of Tweeddale's collection I have examined a typical specimen of this bird labelled "Aru Islands;" but as there is no indication on the label by whom it was collected, I think the locality must be wrong; for it appears to me impossible that a species like the present one, which is really barely more than a constant local variety, should be found so apparently out of its geographical district as the Aru Islands, when it appears to be absent, and replaced by an entirely distinct species (*C. theresia*) in the intervening Kei Islands. I have therefore taken no notice of this specimen in the range which I assign to the present species.

C. aspasioides is distinguished from *C. proserpina* by the scapulars and greater series of wing-coverts being metallic.

Mr. G. R. Gray, who first distinguished this bird from *C. aspasia*, nevertheless appears to have confounded it with *C. proserpina* in his 'Hand-list of Birds;' for he there gives the locality Bouru for this species, which would appear to have been taken from some specimen in the British Museum. But in that collection there are no specimens of any Sun-bird from Bouru except *C. proserpina*; I have therefore excluded that island from the range assigned to this species.

CINNYRIS ASPASIAE.

(NEW-GUINEA BLACK SUN-BIRD.)

Cinnyris aspasia, Less. Voy. Coq. Zool. i. p. 676. no. 100, pl. 30. fig. 4 (1826); id. Traité d'Orn. i. p. 295. no. 14 (1831); Bp. Consp. Av. i. p. 409 (1850); Bernst. J. f. O. 1859, p. 279; Rosenb. J. f. O. 1864, p. 123 (part.).

Cinnyris sericeus, Less. Dict. Sc. Nat. i. p. 21 (1827); id. Man. d'Orn. ii. p. 43 (1828).

Cinnyris aspasiae, Less. Compl. Buff Ois. p. 590 (1838).

Nectarinia aspasia, Jard. Monogr. Sun-birds, pp. 219, 272 (1843); S. Müll. & Schl. Verh. Nat. Gesch. Aves, pp. 58, 64, 65 (1846, part.); Gray, Gen. B. i. p. 98. no. 44 (1847); Sclat. Journ. Linn. Soc. ii. p. 157 (1858); Gray, P. Z. S. 1858, p. 190 (part.); id. P. Z. S. 1859, p. 155; id. Cat. B. New Guinea, pp. 22, 55 (1859, part.); id. P. Z. S. 1861, p. 433 (part.); Finsch, Neu-Guinea, p. 163 (1865, part.).

Nectarinia amasia, S. Müll. Natuurl. Gesch. Land- en Volkenk. p. 22 (1843); Gray, P. Z. S. 1858, p. 190; id. Cat. B. New Guinea, p. 55 (1859); id. P. Z. S. 1861, p. 433; Finsch, Neu-Guinea, p. 163 (1865); Walden, Ibis, 1870, p. 50.

Chalcostetha aspasia, Cab. Mus. Hein. i. p. 103 (1850); Bp. Coll. Delattre, p. 57 (1854); Walden, Ibis, 1870, p. 45; Meyer, Sitzungsber. k. Akad. Wissensch. zu Wien, lxx. p. 122 (1874).

Hermotimia aspasia, Reichb. Handb. Scansoriæ, p. 285. no. 661, pl. 572. fig. 3901 (1853); Salvad. Atti R. Acc. Torino, x. p. 219 (1874); id. Ann. Mus. Civic. Genova, vii. pp. 400, 936 (1875); D'Albertis, Sydney Mail, 1877, p. 248; Salvad. Atti R. Acc. Torino, xii. p. 302 (1877).

Promerops aspasia, Gray, Hand-l. B. i. p. 110. no. 1355 (1869).

Promerops amasia, Gray, tom. cit. no. 1362.

Ptiloturus aspasia, Gieb. Thes. Orn. i. pp. 631, 695 (1872).

Chalcostetha chlorocephala, Salvad. Ann. Mus. Civic. Genova, vi. p. 78 (1874).

Hermotimia chlorocephala, Salvad. Atti R. Acc. Torino, x. pp. 208, 226 (1874); xii. p. 305 (1877).

Hermotimia, sp.?, Salvad. Ann. Mus. Civic. Genov. ix. pp. 30, 31. nos. 113, 114 (1876); id. Atti R. Acc. Torino, xii. p. 312 (1877).

ad. niger indigotico adumbratus : pileo metallicè smaragdineo : tectricibus minimis et medianis, scapularibus, dorso postico et rectricum marginibus lætè metallicè smaragdineis, vix chalybeo tinctis : tectricibus majoribus externis vix metallicè cyanescenti-viridi marginatis : mento gulâque chalybeis lilacino lavatis : rostro pedibusque nigris : iride saturatè brunnæ.

ad. pilco colloque postico saturatè cinerascens, capite laterali pallidiore : dorso, scapularibus et supra-caudalibus olivaceis : alarum plumis brunneis lætè olivaceo marginatis, remigibus flavicanti lavatis : rectricibus nigris, vix olivaceo marginatis, exterioribus omnibus pallidiùs terminatis : gulâ albâ : corpore

reliquo subtùs pallidè flavò: subalaribus et remigibus intùs albis, margine carpali flavido: rostro et pedibus nigris: iride saturate brunneâ.

Hab. in insulis Papuanis.

Adult Male. Black, with a deep-blue gloss; entire crown metallic emerald green; least and median series of wing-coverts, scapulars, lower back, upper tail-coverts, and edges of the tail-feathers rich metallic green, barely tinged with blue; some of the outer greater wing-coverts partially edged with metallic bluish green; chin and throat lilac-shaded steel-blue; bill and legs black; irides dark brown. Total length 4.2 inches, culmen 0.65, wing 2.4, tail 1.5, tarsus 0.6.

Adult Female. Upper part of the head and back of the neck dark ashy grey; sides of the head paler; back, scapulars, and upper tail-coverts olive; wings brown, the feathers broadly edged with olive, which, on the quills, has a slightly yellower shade; tail black, the feathers partially margined with olive, and with pale ends to all but the centre ones; chin and throat ashy white; breast and under tail-coverts pale yellow, slightly tinted with olive; under wing-coverts and inner margins of the quills white, shaded with sulphur-yellow on the primary joint; bill and legs black; irides dark brown. Total length 4.1 inches, culmen 0.65, wing 2.1, tail 1.4, tarsus 0.6.

Male in moult. Similar in plumage to the female, but with a steel-blue streak down each side of the throat; upper tail-coverts mottled with metallic green; tail black, the feathers partially margined with metallic green.

HAB. Waigiou, Kofliou, Mysol, Salwatti, Aru Islands, and New Guinea, and eastward to the Duke-of-York Island.

THE present species, the most widely spread of the "*Hermotimia*" group, belongs to that section of the Black Sun-birds in which the metallic portions of the lower back are green. It has the scapulars and median series of wing-coverts metallic, and may thus be distinguished from *C. proserpinae*, *C. nigroscapularis*, and *C. salvadorii*. From *C. mafeorensis* it may be separated by the green instead of golden colour of the crown, and from *C. jobiensis* and *C. mysorensis* by the metallic portions of the wings and back being distinctly less shaded with steel-blue; and, moreover, it differs from the latter bird by the metallic throat not descending so far down towards the chest.

It appears to me that *C. aspasioides* is the nearest allied species; and it approaches so near to some specimens of this bird that it is not without some hesitation that I now keep them distinct. The characters by which *C. aspasioides* may be recognized from the present species are given in my article upon that bird, the most marked perhaps of them being the greater length of the culmen and tail, and the throat being pure steel-blue with no shade whatever of lilac.

Although I have recognized many nearly allied forms as distinct species, yet I cannot deny that the present one is still somewhat variable in the shade of colouring of the crown and throat.

It has been collected by Mr. Wallace in the islands of Waigiou and Mysol. From the former locality I have not been able to examine specimens; from the latter island there are in the British Museum several typically coloured specimens, as well as one which more nearly approaches *C. aspasioides* than any other example that I have yet seen; it has the throat only

very slightly tinted with lilac, of which, however, there is never a trace in *C. aspasioides*, and the measurements also show that it is referable to this species.

The specimens with the most golden shade on the crown were shown to me by Count Salvadori from the islands of Koffiao and Salvatti, and from Sorong, on the north-western peninsula of New Guinea. Those with the deepest green shade on the crown come from the Aru Islands, and were in consequence described as distinct by Count Salvadori under the title of *Chalcostetha chlorocephala*. I cannot, however, detect any specific distinction between the type specimen of *C. chlorocephala* and *Cinneryis aspasiæ*; for the crown has such a mere shade more greyish green that it is next to impossible to distinguish it from some specimens from the mainland of New Guinea, and the throat is metallic lilac, strongly shaded with blue on the sides, the metallic portions of the wings and back being perfectly identical with true *C. aspasiæ*. In the British Museum I have examined a specimen from the Aru Islands collected by Mr. Wallace, in which the crown is of a considerably more emerald green; and in this respect it differs more widely from the type of *C. chlorocephala* than that bird does from *C. aspasiæ*; and, further, it differs in having the entire throat uniform metallic lilac.

The shade of colouring of the metallic throat is not a constant character in *C. aspasiæ*; and I find this uniform lilac throat also present in the specimens I examined from Koffiao Island. Thus we find a specimen from Koffiao agreeing perfectly as regards this character, with a specimen from the Aru Islands; but those very two examples are the ones which differ most in the colouring of their crowns. I have come to the conclusion that neither the colour of the crown nor that of the throat are perfectly constant in this species, and that the crown may vary from golden green to emerald-green, and the throat may vary from steel-blue, only slightly shaded with lilac, to pure lilac.

The bluer-throated specimens appear generally to be found on the mainland of New Guinea and on the Duke-of-York Island, the latter a locality from whence Mr. Selater has recently received an adult male and female and a young male. According to Count Salvadori (Att. R. Acc. Torino, xii. p. 303), these specimens from the Duke-of-York Island should not be referred to *C. aspasiæ*; for, he observes, the male does not agree exactly with any of the numerous specimens examined by him of this species. I myself have also compared it with Dorey specimens and can find no distinctive characters whatever in the plumage or measurements of the adult male. The female and young male are certainly rather bright on the underparts, but differ in no other respect from similar specimens of *C. aspasiæ*. The most that in my opinion can be said with regard to these specimens is that they may belong to a race in which the plumage of the female and young bird is possibly constantly paler and brighter than in the typical Dorey race. Under any circumstances its distinctive characters are not so well marked as in many of the races of Indian Sun-birds, such as *C. intermedius* and *C. brevirostris*, which I refer to races of *C. asiaticus*, or the Indian and Ceylon races of *C. zeylonicus* and *C. lotenius*, which have never yet been separated.

In the above article Count Salvadori further gives some interesting notes upon the plumages of sixteen specimens from Dorey, Mansinam, Krudu, Sorong, Salvatti, and Koffiao, and remarks that the bird collected by D'Albertis at Naiabui, on the Fly River, is referred by that gentleman ('The Sydney Mail,' 1877, p. 248) to *C. aspasiæ*. Count Salvadori, however, still retains that

specimen (p. 312) as distinct, but does not give it a name. It is labelled male, but is in a dress similar to that of the female; and its only known specific character lies in the bill being wider at the base than in any other species of this group yet described. •

Besides the localities above mentioned, *C. aspasiæ* has been collected by Dr. Meyer at Andai (foot of Arfak Mountains), at Nappan, and at Rubi (coast of Geelvink Bay); and by Müller at Lobo.

Of the localities wrongly assigned to this bird we have Macassar and Banda Island (*S. Müller*). Undoubtedly the specimens collected in the former locality should be referred to *C. porphyrolæmus*; and those collected by him in the latter island probably belong to the Ceram form (*C. aspasioides*). The specimens mentioned by Von Rosenberg from the Kei Islands should no doubt belong, as Count Salvadori has already remarked, to *C. theresiæ*.

Very little has ever been written upon the habits of this species. Lesson mentions it as frequenting the woods which surround the Port of Dorey, where he collected the type specimens; and *S. Müller* tells us that he found it in habits to be very similar to *Chalcostetha insignis*, frequenting the coast in the vicinity of streams and marshes, constantly flitting among the aquatic shrubs and plants, where, although active in its habits, it was not shy.

A nest collected by Von Rosenberg in the vicinity of Dorey contained two eggs, and has been described by Bernstein as similar to that of *Chalcostetha insignis*, about 6 inches in length, of an oval form, widening below, and suspended by a narrow thread from the extremity of a twig. It was constructed of leaves, fibres, and bark interwoven with spider's web and caterpillar-silk, by which it was attached to the overhanging bough, and was prevented from slipping off by the two end leaves being thus secured and interwoven into the sides of the nest. The entrance to the nest was an oval hole at one side. The eggs were transparent white, with a few small black spots towards the thick end only.

Count Salvadori (*Atti R. Acc. Tor.* x. p. 223) points out very clearly that the name *Nectarinia amasia* was a *lapsus calami* of Müller, or was a printer's error, *amasia* being printed instead of *aspasia*; for in the index we find *N. aspasia* cited for page 22, and the name is not found in Müller and Schlegel's later work.

In Mr. Godman's collection I have seen two specimens of *C. aspasiæ* labelled Cape York, on the authority of Mr. Cockerell; and doubting the correctness of the locality, I wrote to Mr. Ramsay, in Australia, upon the subject, who kindly writes:—"With regard to *C. aspasiæ* Mr. Thorpe, who skinned the whole, and collected the greater part, of the birds obtained by Thorpe and Cockerell at Cape York, assures me that no other Sun-bird, except *C. frenatus* (*N. australis*, Gould), was obtained there by them. Cockerell, sen., on his way from the Aru Islands to Brisbane, called in at Cape York; and I examined the whole of his collection at Brisbane on his return. He showed me many wonderful species said to have been shot at Cape York, amongst others *Henicoperius longicauda*, *Ardea heliosylos*, and *Cinnyris aspasiæ*. These two latter he made Mr. Diggles believe he got there; and they were accordingly figured by him as new Australian birds. Mr. James Cockerell, who accompanied his father to the Aru Islands, informs me that *C. aspasiæ* was not shot at Cape York."



CINNYRIS CORNELIÆ

(TARAWAI SUN-BIRD.)

Hermotimia cornelia, Salvad. Atti R. Acc. Torino, xiii, p. 319 (1878).

♂ *ad.* similis *C. aspasie* sed paullo major: gutture omninò metallicè lilacino, ad latera gulæ summæ et versùs regionem præpectoralem minimè chalybeo tincto distinguendus.

♀ *ad.* similis ♀ *C. aspasie*, sed paullo major.

Hab. in insulâ papuanâ "Tarawai" vel "D'Urville" dictâ.

Adult Male. Similar in plumage to *C. aspasie* from Dorey, excepting that the throat is entirely metallic lilac, only very slightly tinted with steel-blue on the sides of the upper throat and towards the crop. It is also slightly larger. Total length 4·6 inches, culmen 0·7, wing 2·7, tail 1·8, tarsus 0·7.

Adult Female. Similar in plumage to typical *C. aspasie*, only larger.

HAB. Island of Tarawai or D'Urville Island.

THE island of D'Urville, known to the natives as Tarawai, is situated off the northern coast of New Guinea, in long. 143° 7' E.

On this island Mr. Bruijn has recently collected twelve specimens of a Sun-bird which, in deference to Count Salvadori, I treat as distinct from *C. aspasie*, though in my opinion the characters are not of sufficient value to be considered specific, but indicate rather a constant local race or subspecies.

Count Salvadori informs us that Mr. Bruijn's hunters collected eight adult males, three adult females, and one male in moult, in all of which the characters are perfectly constant. These he compared with a large series of the other allied species, especially with *C. aspasie*, and entertains no doubt of their belonging to a distinct species, differing, as he observes, from *C. aspasie* by their notably larger size, and by the throat being constantly lilac, without any mixture of steel-blue.

The only characters which appear to me to distinguish this form from *C. aspasie* are the measurements; and these, in my opinion, are too slight to constitute specific distinction. The colouring of the throat, which appears to be constant in Tarawai specimens, agrees perfectly with the colouring of the throat in some individuals from the Aru Islands and from Koffiao, where, however, the colouring of this part is not a constant character.

The adult male and female are described from two of the typical specimens in my own collection.



CENODORIS CORINNAE

CINNYRIS CORINNÆ

(DUKE-OF-YORK-ISLAND SUN-BIRD.)

Nectarinia aspasia, Sclat. P. Z. S. 1877, p. 102.

Hermotimia aspasia?, Salvad. Atti R. Acc. Sc. Torino, xii, p. 312 (1877).

Cinnyris aspasia, Shelley, Monogr. Sun-birds, pt. v. (1877, part.).

Hermotimia corinna, Salvad. Atti R. Acc. Sc. Torino, xiii, p. 532 (1878).

♂ *ad.* similis *C. aspasia*, sed gutture chalybeo minimè lilacino tincto distinguendus.

♀ *ad.* similis ♀ *C. aspasia*, sed pectore lactius flavo diversa.

Hab. in insulâ papuanâ "Duke of York" dictâ.

Adult Male. Similar in plumage to *C. aspasia* from Dorey, excepting that the throat is entirely steel-blue only very slightly tinted with lilac. Total length 4·1 inches, culmen 0·65, wing 2·5, tail 1·7, tarsus 0·62.

Adult Female and Immature Male. Differ only from Dorey examples of *C. aspasia* in the colours being brighter, especially the yellow on the breast.

HAB. Duke-of-York Island.

THE Duke-of-York Island is situated to the east of New Guinea, between New Britain and New Ireland. In this island Mr. George Brown collected several specimens of a Sun-bird to which Count Salvadori has applied the title of *Hermotimia corinna*, and insists upon its being specifically distinct from *C. aspasia*. I have therefore here treated of this form in a separate article, and give an illustration of the adult male and female, and of the male in moult.

I have carefully reexamined this subject, and have come to the same conclusion which I have previously expressed, that it is not specifically distinct from *C. aspasia*, but only a local race of that species.

With regard to the measurements, the two birds agree in size, in the length of the culmen and wing, with *C. aspasia*; in the length of the tail they occasionally, but not invariably, exceed that of typical *C. aspasia*, as measured by me, by 0·1 to 0·2 inch; and the tarsus is very slightly longer, but never more than 0·05 inch; so that I do not consider that any specific characters can be based upon the measurements. In colouring the only character in the adult male to be remarked upon is the constantly very blue throat only slightly tinged with lilac; but this character I have already recognized as very variable in *C. aspasia*; for in the British Museum I have examined two specimens collected by Mr. Wallace on the island of Mysol, in one of which the throat is quite as blue as in the Duke-of-York-Island specimens, while in the other the throat is blue and lilac, and perfectly identical with Dorey specimens.

The females have on the under surface of the body a plumage much lighter than we have

met with in New-Guinea specimens, their chins and throats being perfectly white, and the breast sulphur-yellow, which character is also as intensely marked in the males in moult.

When I wrote my article upon *C. aspasix* I had only three specimens before me from the Duke-of-York Island. I now have ten—two males in full plumage, one nearly so with a few feathers of the moult on the chest, one in about half moult, four in nearly full moult, and two females; yet I cannot recognize this form as specifically distinct from *C. aspasix*; but it may be considered a local race in which the females and males in moult present the most marked characters.



CHLAMYPTERUS MAFORENCIS
CHLAMYPTERUS MYSORENCIS

CINNYRIS MAFORENSIS.

, (MAFOOR-ISLAND BLACK SUN-BIRD.)

Chalcostetha aspasia, var. *maforensis*, Meyer, Sitz. k. Ak. Wissensch. zu Wien, lxx. p. 123 (1874); Sclater, Ibis, 1874, p. 419.

Hermotimia maforensis, Salvad. Atti R. Acc. Torino, x. pp. 208, 227 (1874), xii. p. 301 (1877).

♂ *ad.* similis *C. aspasiæ*, sed major et pileo lætè aurato distinguendus.

HAB. in insulâ Papuanâ "Mafoor" dicta.

Adult Male. Black with a deep-blue gloss, the entire crown golden; the least and median series of wing-coverts, the scapulars, the lower half of the back, and the upper tail-coverts metallic green very slightly shaded with blue; a few of the outer greater wing-coverts and the tail-feathers edged with the same colour; chin and throat violet-shaded steel-blue. Total length 4 inches, culmen 0·75, wing 2·5, tail 1·6, tarsus 0·65.

HAB. Island of Mafoor, in the Bay of Geelvink.

THE present species belongs to the division of the "*Hermotimia*" group in which the lower back is green. It only differs from *C. aspasiæ* in the golden colour of the crown, which in this bird is only faintly tinted with green in certain lights. It is also slightly larger. As far as we yet know, it is entirely confined to the small island of Mafoor, in the Bay of Geelvink.

The figure and description of this bird I have taken from one of the typical specimens collected by Dr. Meyer, and lent to me by him.

CINNYRIS MYSORENSIS.

(MYSORE-ISLAND BLACK SUN-BIRD.)

Chalcostetha aspasia, var. *mysorensis*, Meyer, Sitz. k. Ak. Wissensch. zu Wien, lxx. p. 124 (1874); Sclat. Ibis, 1874, p. 419.

Hermotimia mysorensis, Salvad. Atti R. Acc. Torino, x. pp. 208, 224 (1874), xii. p. 301 (1877).

♂ *ad. C. jobiensi* similis, sed plagâ gutturali metallicè lilacinâ ampliùs extensâ et versùs præpectus rotundatâ.

♀ *ad. feminæ C. aspasie* similis.

Hab. in insulâ Papuanâ "Mysore" dictâ.

Adult Male. Black with a deep-blue gloss; the entire crown metallic bluish emerald-green; the least and median series of wing-coverts, scapulars, lower half of the back, and the upper tail-coverts metallic green, very strongly shaded with blue; the tail-feathers and a few of the outer greater wing-coverts edged with the same metallic bluish green; chin and throat rich metallic lilac, and extending further on the chest than in *C. aspasie*; bill and legs black; irides dark brown. Total length 4·6 inches, culmen 0·8, wing 2·5, tail 1·7, tarsus 0·65.

Adult Female and Young Male. Similar in plumage to those of *C. aspasie*.

HAB. Island of Mysore, in the Bay of Geelvink.

THIS form is nearly related to *C. aspasie*; and I place it in the green-backed division of the "*Hermotimia*" group: yet it much depends upon the light in which we view these feathers, as to whether the green or blue shade predominates; in this respect therefore it may be readily distinguished from *C. aspasie*, as well as in the greater extent of the metallic throat. It also differs from typical specimens of that bird in having the crown of a darker colour, and the throat almost pure lilac; but these parts in *C. aspasie* vary to a certain extent in individual specimens, as may be seen in my article upon that species.

The present bird has only been found on Mysore, the large outer island of the Bay of Geelvink, where it was first collected by Dr. Meyer, who pointed out its specific characters.

I have figured and described the adult male from a specimen lent to me by Count Salvardi; and I have examined four typical specimens of Dr. Meyer's collecting from the Dresden Museum. These are:—a fully plumaged male perfectly similar to the adult male above described; a male in nearly full plumage, with a few feathers of the moult still remaining on the median series of wing-coverts, and a large patch of yellow on the abdomen; the third specimen is nearly in full moult—that is to say, similar in plumage to the female, with a few feathers of the full dress on the back, upper tail-coverts, and breast, and with well-defined metallic moustachial lines down the sides of the throat; the fourth specimen is an adult female.

CINNYRIS JOBIENSIS.

(JOBI-ISLAND BLACK SUN-BIRD.)

Chalcostetha aspasia, var. *jobiensis*, Meyer, Sitz. k. Ak. Wissensch. zu Wien, lxx. p. 124 (1874); Sclat. Ibis, 1874, p. 419.

Hermotimia jobiensis, Salvad. Atti R. Acc. Torino, x. pp. 208, 225 (1874), xii. p. 302 (1877).

♂ *ad.* *C. aspasiae* simillimus, sed pilco saturatiore smaragdineo cyanescente: alae dorsique plumis metallicis cyanescenti adumbratis: tectricibus majoribus paucis exterioribus et rectricibus cyanescenti-viridi marginatis: mento gulâque lætè metallicè lilacinis abruptè definitis et vix ut in *C. aspasiae* extensis.

♀ *ad.* feminae *C. aspasiae* similis.

HAB. in insulâ Papuanâ "Jobi" dictâ.

Adult Male. Black with a deep-blue gloss; the entire crown metallic bluish emerald-green; the least and median series of wing-coverts, scapulars, lower half of the back, and the upper tail-coverts metallic green very strongly shaded with blue; the tail-feathers and a few of the outer greater wing-coverts edged with the same metallic bluish green; chin and throat rich metallic lilac, abruptly terminating in a nearly straight line, and barely extending so far down as in *C. aspasiae*; bill and legs black; irides dark brown. Total length 4.1 inches, culmen 0.7, wing 2.4, tail 1.5, tarsus 0.65.

Adult Female and Young Male. Similar in plumage to those of *C. aspasiae*.

HAB. Jobi Island, in the Bay of Geelvink.

C. jobiensis is nearly intermediate in plumage between *C. aspasiae* and *C. mysorensis*, and is one of those closely allied species which are very hard to distinguish. Its specific characters appear mostly to depend upon the strong blue shade on the metallic green parts of the wings and lower back. In this respect it resembles *C. mysorensis*, but differs decidedly from that bird by the metallic portions of the throat being shorter and very abruptly terminated in nearly a straight line, being, if any thing, shorter than in *C. aspasiae*. This metallic throat appears to be constantly lilac with no steel-blue shade; and this character is sufficient to distinguish it from *C. aspasiae* of the mainland of New Guinea; but so variable is this character in that species that the present bird cannot be separated on that account from some of the specimens of *C. aspasiae* from the islands on the west coast. The crown, again, in the present species, as in *C. mysorensis*, is darker, and not of such a golden green as is generally met with in *C. aspasiae*; but some specimens of *C. aspasiae*, notably those from the Aru Islands, in some cases approach it very nearly.

This species was first collected by Dr. Meyer near Ansum, in Jobi, one of the islands in the Bay of Geelvink. He remarks (*l. c.*) that it resembles *C. mysorensis*, but that the metallic throat

does not extend so far down ; and he adds that the females and young males of the three species here mentioned are perfectly identical.

My description of the male is taken from one of the specimens in the Turin Museum.

In the Dresden Museum I have examined four of Dr. Meyer's typical specimens. One of these is a full-plumaged male, agreeing in every respect with the bird above described ; two are females, and the fourth a male in nearly full moult. All these specimens are considerably smaller than *C. mysorensis*.



CINNYRIS THERESIAE

CINNYRIS THERESÆ.

(KEI-ISLAND BLACK SUN-BIRD.)

Cinnyris aspasia (part.), Rosenb. J. f. O. 1864, p. 123.

Nectarinia aspasia (part.), Finsch, Neu-Guinea, p. 163 (1865).

Chalcostetha chlorolæma, Salvad. Ann. Mus. Civic. Genova, vi. p. 77 (1874).

Hermotimia theresia, Salvad. Atti R. Acc. Torino, x. pp. 208, 214, cum tab. fig. 1 (1874).
xii. p. 300 (1877).

♂ *ad.* niger: pileo metallicè aurato-iridi: rectricibus alarum minimis et medianis, dorso postico, supra-caudalibus et rectricum marginibus metallicè viridibus: mento gulæque metallicè viridibus dorso postico concoloribus.

♂ *imm.* pileo et collo postico saturatè cinerascens, pileo laterali pallidior: dorso, scapularibus et supra-caudalibus olivaceis-flavis: alis saturatè brunneis, plumis latè olivaceis-flavo marginatis: rectricibus nigris, angustè olivaceo limbatis, quatuor externis albo terminatis: mento gulæque cinerascens-albis, lateraliter metallicè viridibus: corpore reliquo subtus pallide flavo.

HAB. in insulis "Kei" dictis.

Adult Male. Black, with a deep-blue gloss; the entire crown metallic golden green; least and median series of wing-coverts, scapulars, lower half of the back, and the upper tail-coverts metallic green; remainder of the wings brownish black, glossed with blue, and with some of the outer greater coverts partially edged with metallic green; chin and throat of the same metallic green as the lower back; bill and legs black; irides dark brown. Total length 4.8 inches, culmen 0.8, wing 2.35, tail 1.6, tarsus 0.65.

Male in moult. Forehead, crown, and back of the neck deep ashy grey, sides of the head paler; back, scapulars, and upper tail-coverts olive-yellow; wings dark brown, with all the feathers broadly edged with olive-yellow; tail black, the feathers narrowly edged with olive, and with white ends to the four outer ones, broadest on the lateral ones; chin and throat ashy white, with a streak of metallic green feathers on each side; breast and under tail-coverts very pale yellow; under surface of the wings brown, with the coverts and the inner margins of the quills white. Total length 4.5 inches, culmen 0.8, wing 2.35, tail 1.6, tarsus 0.65.

HAB. Kei Islands.

THIS well-marked species may be readily distinguished from all the other members of this group by the chin and throat being of the same brilliant metallic green as the lower back.

It appears to be confined to the Kei Islands, where Signor Beccari in 1873 procured four fully plumaged adult males and one male in moult; upon these Count Salvadori founded his *Chalcostetha chlorolæma*, but changed the name a few months later into *Hermotimia theresia*, in honour of the Marchioness Teresa Doria, on account of the name *Nectarinia chlorolæma* having

been employed by Dr. Hartlaub for a West-African species. This employment of the name, Dr. Hartlaub has informed me, was a misprint for *N. tephrolæma*; but Count Salvadori is, I consider, quite justified in not again using that name, and I have therefore adopted his later title for this species.

It is, I believe, the only member of this group of Sun-birds which is found in the Kci Islands, and is therefore included by Von Rosenberg and Finsch in the above references under the title of *aspasia*.

The specimens which I have here described and figured are two of Count Salvadori's types. From the plumage of the male in moult it would appear that the adult female must be very like that of *C. aspasia*.



CINNYRIS HASSELTII.

(VAN HASSELT'S SUN-BIRD.)

Le Grimpereau violet du Brésil, Briss. Orn. iii. p. 661. no. 30 (1760).

Le Guit-guit noir et violet, Buff. Hist. Nat. v. p. 541. no. 30 (1778).

Black and Violet Creeper, Lath. Gen. Syn. i. p. 730 (1781); id. Gen. Hist. iv. p. 274. no. 89.

Certhia brasiliana, Gm. S. N. i. p. 474. no. 41 (1788, ex Briss.); Lath. Ind. Orn. i. p. 293. no. 39 (1790); Shaw, Gen. Zool. viii. p. 257 (1811); Bechst. Kurze Uebers. p. 183. no. 40 (1812).

Le Soui-manga violet, Audub. et Vieill. Ois. Dor. ii. p. 65 (1802).

Certhia sperata, Raffles, Tr. Linn. Soc. xiii. p. 298 (1822, nec Linn.).

Nectarinia hasseltii, Temm. Pl. Col. 376. fig. 3 (1825); Jard. Monogr. Sun-birds, pp. 218, 262, pl. 22 (1843); S. Müll. & Schl. Verh. Nat. Gesch. Aves, p. 59, pl. 10. fig. 5 (1846); Gray, Gen. B. i. p. 98 (1847); Low, Sarawak, p. 410 (1848); Blyth, Cat. B. Mus. A. S. B. p. 226, no. 1370 (1849); Selater, P. Z. S. 1863, p. 220; Pelzeln, Reise Novara, Vög. pp. 52, 161 (1865); Beavan, Ibis, 1869, p. 420.

Cinnyris hasseltii, Less. Man. d'Orn. ii. p. 31 (1828); Bp. Consp. Av. i. p. 409, no. 48 (1850).

Cinnyris ruber, Less. Traité d'Orn. p. 296. no. 23 (1831); Pucheran, Rev. et Mag. Zool. 1853, p. 487 (1853).

Nectarinia phayrei, Blyth, J. A. S. B. xii. p. 1008 (1843); id. op. cit. xiv. p. 557 (1845); Gray, Gen. B. i. p. 98. no. 60 (1847).

Leptocoma hasseltii, Cab. Mus. Hein. i. p. 104 (1850); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 740. no. 1081 (1856); Moore, P. Z. S. 1859, p. 462; Hume, Str. F. 1874, p. 473.

Nectarophila hasseltii, Reichb. Handb. Scansoriæ, p. 280. no. 650, p. 563. figs. 3868-70 (1854); Salvad. Ann. Mus. Civic. Genova, v. p. 177 (1874); Sharpe, P. Z. S. 1875, p. 106.

Leptocoma brasiliana, Walden, P. Z. S. 1866, p. 543.

Arachnothera phayrei, Gray, Hand-l. B. i. p. 111. no. 1380 (1869).

Arachnothera hasseltii, Gray, tom. cit. p. 112. no. 1394.

Nectarophila brasiliana, Walden, Ibis, 1870, p. 41.

♂ *ad.* pileo nuchâque metallicè viridibus: capitis et colli lateribus, dorso summo, alis scapularibusque nigris: tectricibus alarum minimis et scapularibus minoribus, dorso postico, uropygio et supracaudalibus chalybeis: caudâ indigotico-nigrâ, rectricibus omnibus chalybeo marginatis: mento et gulâ metallicè lilacinis: pectore saturatè rubro: abdomine, subcaudalibus, et remigibus infra, nigris: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* suprâ olivascenti-flava: supercilio indistincto flavido: alis brunneis, tectricibus alarum minimis et medianis olivascenti-flavo, majoribus pallidè brunneo, remigibus brunnescenti-flavo marginatis: caudâ nigrâ, rectricibus vix olivaceo marginatis, tribus externis latè albo terminatis: subtus pallidè flava.

Hab. in regione Indo-Malayanâ usque ad terras Burmanenses.

..

Adult Male. Forehead, crown, and nape metallic golden-green; sides of the head and neck and the upper half of the back and the scapulars black; least series of wing-coverts, smaller scapulars, lower half of the back, and the upper tail-coverts steel-blue with green and violet reflections; remainder of the wings black; tail blue-black, the feathers edged with steel-blue; chin and throat rich metallic lilac; chest deep red; abdomen, under tail-coverts, and under surface of the wings black; bill and legs black; irides dark brown. Total length 4 inches, culmen 0.55, wing 1.9, tail 1.2, tarsus 0.5.

Adult Female. Upper parts olive-yellow; an indistinct narrow yellow eyebrow; wings brown, the least and median series of coverts edged with olive-yellow, the greater coverts with pale brown, and the quills with brownish yellow; tail black, the feathers slightly edged with olive, and with broad pale ends to the three outer feathers on each side; underparts pale yellow, slightly tinted with olive; bill and legs black; irides dark brown. Total length 3.5 inches, culmen 0.5, wing 1.75, tail 1.1, tarsus 0.5.

HAB. Hill Tipperah and Chittagong, Arracan, Southern Burmah, Tenasserim, the entire Malay peninsula, and the islands of Sumatra, Java, and Borneo.

THE "Nectarophila" group, to which the present species belongs, comprises four brilliantly coloured eastern species, which have the metallic portions, as in the "Hermotimia" group, confined to the crown, throat, wing-coverts, lower back, and upper tail-coverts. They constitute the genus *Leptocoma* of Cabanis, a name which, having been previously employed in botany, was changed by Reichenbach into *Nectarophila*. The true position of this group is evidently between the black-coloured group (*Hermotimia*, Reichenbach) and the "Asiatic olive-backed group" (*Cyrtostomus*, Cabanis).

Van Hasselt's Sun-bird may be distinguished from the other members of the "Nectarophila" group by its having the upper back and the abdomen black, and the chest deep red.

It is a widely spread and rather common species. In Arracan it has been collected by Sir Arthur Phayre, whose specimens formed the types of *Nectarinia phayrei*, Blyth. In Tenasserim it has been procured by Captain Beavan at Moulmein, in the valley of the lower course of the Salween river, where it was found by him feeding on the low flowering shrubs (P. Z. S. 1866, p. 543); and he further informs us (Ibis, 1869, p. 420) that at Moulmein, where he procured it in a garden on the 30th of August, it was apparently rather rare. "Its note is a low piping call." According to Mr. Hume (Str. F. 1874, p. 473) it is rare in that province between Om-ben-gwen and Tavoy. Messrs. Hume and Davison write to me:—"The head quarters of this lovely species seems to be the extreme south of Tenasserim. About Mergui, and between Mergui and the Pakchan estuary, it was common to a degree, frequenting principally the gardens and cocoanut-palms, but found also occasionally in forest, where this is not too thick, and in the mangroves that everywhere about Mergui fringe the interminable labyrinths of creeks. Northward we obtained it at Tavoy and Ye, but did not observe it further north in Tenasserim, though it has been obtained at Moulmein, where, however, it is rare; neither have we received it from Pegu; but it again appears in the Arracan hills, Chittagong, and Hill Tipperah, from whence many specimens were sent us long ago by the late Mr. Irvine.

"As far as we can judge from our very large series, killed at different times, this species has no distinctive non-breeding plumage.

"This species is a true Honey-sucker, feeding almost exclusively on nectar; and its note, like

hat of the rest of its congeners, is only a very feeble 'chip chip,' uttered as it flies from flower to flower.

"We measured a great many specimens in the flesh:—

"*Male*. Length 3·8 to 4·12 inches, expanse 5·85 to 6·25, tail from vent 1·1 to 1·45, wing 1·75 to 1·95, tarsus 0·45 to 0·5, bill from gape 0·6 to 0·65; weight 0·2 to 0·25 oz.

"*Female*. Length 3·75 to 3·85 inches, expanse 5·82 to 6·12, tail from vent 2·12 to 2·25, wing 1·75 to 1·85, tarsus 0·5, bill from gape 0·62 to 0·65; weight 0·2 to 0·25 oz.

"Bill, legs, and feet black; irides dark brown."

In Penang Mr. Swinhoe collected numerous specimens, a male and female of which I have figured and described in the present work. Dr. Cantor also found it plentiful in that island, as well as at Malacca.

Mr. Blyth observes (J. A. S. B. xiv. p. 557):—" *Nectarinia phayrei* proves (as I formerly suspected) to be the *N. hasseltii*, Temm., and is common also in Malacca;" and he further justly remarks that it is the *Certhia sperata*, var., of Raffles, from Sumatra, where, according to that naturalist, it is known as "Chirichit, Chechat, or Siap." According to M. Pucheran, the type of *Cinnyris ruber*, Less., was collected by M. Duvaucel in Sumatra; and as Temminck's type of *Nectarinia hasseltii* was procured by Van Hasselt in Java, it is seen that the Arracan, Sumatra, and Java specimens have each received a separate title.

In Borneo it appears to be widely distributed, having been collected at Banjermassing, in the south, by Motley, at Sarawak by Wallace, Doria, and Beccari, where it is considered by Count Salvadori to be rare; but from the north-west coast opposite Labuan, and from that island itself, Mr. Low has brought home a great number of specimens, as well as the nest and

The nest is suspended from the end of a twig by a cord of bark fibres, 2·5 inches in length, at the end of which it swells gradually into the shape of a pear, with an oval aperture at one side near the top, and, although loosely, is very neatly constructed, entirely of bark, thin leaf-like portions of which give to it solidity, and are bound together with strips like matting, and with air-like fibres, the finer threads forming the sole inner lining. The whole structure being of the colour of dead leaves, with here and there some whitish portions of outer bark, must be very difficult to detect.

The egg measures 0·72 by 0·50 of an inch, and is of a nearly uniform oval. Its colour is white clouded with a greyish zone towards the obtuse end; and it is thickly striped longitudinally with irregular rufous-brown bands, not extending quite to the ends, where there are a few bold irregular blotches of the same colour; these coloured parts appear as if thinly washed over with white; and there are no small spots.

Messrs. Hume and Davison inform me that *C. zeylonicus* has no separate non-breeding plumage; and I feel very confident that the present species has not got one either, a very exceptional case with birds of this family.

I published my illustration of this bird in the first Part of my work, under the oldest name *Cinnyris brasiliensis*. It was afterwards pointed out to me (Ibis, 1877, p. 124) that this name, not being appropriate to a Malayan bird, may on that account be put aside. I have therefore here employed Temminck's title.



CINNYRIS SPERATUS.

(PHILIPPINE SUN-BIRD.)

- Le Grimpereau pourpré des Philippines*, Briss. Orn. iii. p. 655. no. 27. pl. 31. figs. 2, 3 (1760).
Certhia sperata, Linn. S. N. i. p. 186. no. 13 (1766, ex Briss.); P. L. S. Müll. S. N. ii. p. 257. no. 13 (1773); Gm. S. N. i. p. 477. no. 13, et var. β (1788); Lath. Ind. Orn. i. p. 283. no. 8, et var. γ (1790); Shaw, Gen. Zool. viii. p. 206 (1811); Bechst. Kurze Uebers. p. 178. no. 8 (1812).
Grimpereau des Philippines, Montb. Pl. Enl. pl. 246. figs. 1, 2.
Certhia jugularis, P. L. S. Müll. S. N. Anhang, p. 98. no. 29 (1776, ex Montb.); Cass. Pr. Acad. Philad. 1864, p. 244.
Troisième Grimpereau de l'Isle de Luçon, Sonn. Voy. Nouv. Guin. p. 63, pl. 30. fig. D (1776).
Soui-manga marron pourpré à poitrine rouge, Montb. Hist. Ois. v. p. 497 (1778).
Le Grimpereau où Soui-manga à gorge violette et poitrine rouge, Montb. tom. cit. p. 499.
Red-breasted Creeper, Lath. Gen. Syn. B. ii. p. 706. no. 8 (1781); id. Gen. Hist. B. iv. p. 219. no. 8 (1822).
Certhia chalybea, Scop. Flor. et Faun. Insub. ii. p. 91. no. 68 (1786, ex Sonn.).
Soui-manga à gorge violette, Audeb. et Vieill. Ois. Dor. ii. pp. 55, 56, pls. 32, 33 (1802).
Certhia affinis, Shaw, Gen. Zool. viii. p. 208 (1811, ex Audeb. et Vieill.).
Certhia pusilla, Bechst. Kurze Uebers. p. 178. no. 8 (1812).
Cinnyris speratus, Cuv. Règn. Anim. i. p. 412 (1817); Vieill. N. Dict. d'Hist. Nat. xxxi. p. 505 (1819); Bonn. et Vieill. Enc. Méth. ii. p. 593 (1823); Less. Man. d'Orn. ii. p. 56 (1828); id. Traité d'Orn. i. p. 297. no. 24 (1831).
Nectarinia coccinigastra, Temm. Pl. Col. pl. 388. fig. 3 (1826); Gray, Gen. B. i. p. 98 (1847); Von Martens, J. f. O. 1866, p. 12. no. 48 (1866); id. Preuss. Exped. Ost-Asien, p. 189.
Cinnyris coccinigaster, Less. Man. d'Orn. ii. p. 30 (1828).
Nectarinia philippensis (part.), Meyen, Reise, Zool. p. 206 (1834).
Certhia zeylonica, Meyen, tom. cit. p. 206 (nec Linn.).
Nectarinia affinis, Jard. Monogr. Sun-birds, pp. 216, 262, pl. 21 (1843).
Leptocoma sperata, Cab. Mus. Hein. i. p. 105. no. 569 (1850).
Anthreptes expectata, Licht. Nomencl. Av. Mus. Berol. p. 56 (1854).
Chalcomitra pusilla, Reichb. Handb. Scansoriæ, p. 280. no. 649, pl. 568. figs. 3871-72 (1854).
Nectarophila sperata, Reichb. tom. cit. p. 281. no. 651; Walden, Ibis, 1870, p. 42; id. Tr. Z. S. ix. p. 200 (1875).
Nectarophila affinis, Reichb. Handb. Scansoriæ, p. 281. no. 651, pls. 551, 568. figs. 3879-80 et 4066-67 (1854).
Nectarophila coccinigastra, Reichb. tom. cit. p. 283. no. 652, pl. 569. fig. 3882.
Arachnothera sperata, Gray, Hand-l. B. i. p. 112. no. 1393 (1869).

♂ *ad.* pileo summo nuchâque metallicè cupreis viridi nitentibus : genis et regione paroticâ nigris : collo laterali et postico, dorso summo et tectricibus alarum medianis sordidè coccineis : tectricibus minimis, dorso imo, uropygio et supracaudalibus metallicè viridibus violaceo nitentibus : tectricibus majoribus remigibusque brunnescenti-nigris, sordidè coccineo marginatis : rectricibus indigotico-nigris, metallicè violaceo vel chalybeo marginatis : gutture metallicè lilacino : pectore summo chermesino : corpore reliquo subtùs olivaceo, tibiis et subcaudalibus flavo lavatis : rostro et pedibus saturatè brunneis : iride flavicanti-brunnâ.

♀ *suprà* flavicanti-olivacea : facie laterali et vertice cinerascens, hac paullo olivaceo lavato : supercilio albicante : remigibus rectricibusque saturatè brunneis, flavicanti-olivaceo marginatis : rectricibus externis albo terminatis : subtùs sulfurca, mento albicante : loris albis.

♂ *juv.* *suprà* olivascens, capite laterali pileo concolori : supercilio fulvo : dorsi plumis rubro marginatis : remigibus saturatè brunneis, olivaceo limbatis, vix rubro lavatis : rectricibus nigris, olivaceo lavatis, externis albo terminatis : subtùs flavus, plumis præpectoralibus rubro marginatis.

Hab. in insulis Philippinis.

Adult Male. Forehead, crown, and nape metallic coppery green ; cheeks and ear-coverts black ; sides and back of the neck, upper back, scapulars, and median series of wing-coverts deep red ; least series of wing-coverts, lower half of the back, and upper tail-coverts metallic green with a slight violet gloss ; remainder of the wings brownish black, with the edges of the greater coverts and quills deep red ; tail blue-black, the feathers narrowly edged with metallic violet and steel-blue ; chin and throat rich metallic lilac ; chest bright carmine-red ; remainder of the underparts olive, washed with yellow on the thighs and towards the under tail-coverts ; under surface of the wings dark brown ; bill and legs dark brown ; irides yellowish brown. Total length 3·8 inches, culmen 0·65, wing 2, tail 1·2, tarsus 0·55.

Adult Female. Upper parts yellowish olive ; sides and upper half of the head and neck ashy grey, slightly shaded with olive on the crown ; a whitish eyebrow ; wings and tail dark brown, the feathers edged with yellowish olive, with a slight rufous tinge on the greater wing-coverts ; some of the outer tail-feathers tipped with white ; underparts sulphur-yellow, fading into white towards the chin ; lores white.

Young Male. Upper parts olive, including the sides of the head ; a buff eyebrow ; feathers on the back with rufous edges ; wings dark brown, the feathers edged with olive, shaded rufous ; tail dark brown, the feathers with olive edges and with white tips to some of the outer ones ; underparts yellow ; the feathers on the crop broadly edged with red.

HAB. Philippine archipelago.

THIS richly coloured Sun-bird belongs to the "Nectarophila" group, and may be readily distinguished by its olive abdomen, which, together with the deep-red mantle, the metallic lilac throat, and scarlet chest, form characters by which it may be recognized from all the other members of this family.

It inhabits the Philippine Islands, and was first described by Brisson from specimens sent to France by Poivre.

According to Temminck, Dussumier found to be plentiful at Manila ; and in the same island of Luzon it has been collected by Sonnerat, Dr. Meyer, Von Martens, and Dr. Steere. To

the kindness of the latter gentleman I am indebted for my being able to figure the adult female and young male of this species, as well as for the loan of four other beautiful new species of Sun-birds with which his energy first made us acquainted. He also procured it in the islands of Guimaras and Negros.

According to Dr. Meyer the iris is yellowish brown; two specimens of his collecting are recorded by the Marquis of Tweeddale (Tr. Z. S. ix. p. 200), who remarks:—"One has the head golden green, the uropygium and upper tail-coverts pure brilliant metallic green, the throat violet. The other has the head coppery green, the uropygium and upper tail-coverts violet-green, and the throat purple."

Reichenbach enumerates *Certhia sperata*, Linn., *C. affinis*, Shaw, and *Nectarinia coccinigastra*, Temm., as three distinct species; but I concur with the Marquis of Tweeddale (Ibis, 1870, p. 43), where he says, "setting aside the extreme improbability of three closely allied, yet distinct, species of this isolated form coexisting at Manilla, it seems pretty clear that the slight discrepancies to be found on comparing the original descriptions result from the difficulty of noting the iridescent hues of metallic plumage." We may add to these remarks that the metallic colours are liable to be affected by the atmosphere, according to the length of time that these feathers have been worn, and more especially in the preserved specimens which have been exposed to strong sunlight or to damp; and I come to the conclusion that there is but one species of this form, confined to the Philippine Islands, which is subject to slight, but quite unimportant, variations in the shades of the metallic plumes.



CINNYRIS JULIÆ

(CHALLENGER SUN-BIRD.)

Nectarophila julia, Tweeddale, P. Z. S. 1877, pp. 536, 537, 547.

♂ *ad.* similis *C. sperato*, sed præpectore latè flavo et abdomine olivascenti-flavo diversus.

♀ *ad.* suprà olivascenti-viridis, scapularibus quibusdam et dorsi summi plumis paucis vix rubro lavatis: tectricibus alarum minimis et medianis dorso concoloribus, majoribus remigibusque brunnescenti-nigris olivaceo marginatis vix rubro lavatis: subtùs pallidè flava, gutture albicantiore et vix fuscescenti lavato: subalaribus albis, vix flavido lavatis: remigibus infrà saturatè brunneis, intùs albidis: rostro et pedibus nigris: iride saturatè brunneâ.

Hab. in insulâ philippinensi "Malanipa" dictâ.

Adult Male. Forehead, crown, and nape metallic golden green, in certain lights strongly shaded with copper; back and sides of the neck, upper back, scapulars, and median series of wing-coverts deep red; least series of wing-coverts metallic green; remainder of the wings brownish black, the greater coverts and the quills broadly edged with red of a more rusty shade than the back; lower back and upper tail-coverts deep metallic green; tail black with a violet gloss, the feathers partially edged with bronze, with violet and green shades; lores, cheeks, and ear-coverts black, the latter slightly tinted with olive; chin and throat rich metallic lilac; breast bright gamboge-yellow with a few of the feathers down the middle washed with scarlet; flanks, abdomen, and under tail-coverts pale olive-yellow; under surface of the wings dark brown with the coverts yellowish white; bill and legs black; irides dark brown. Total length 3·7 inches, culmen 0·6, wing 2·0, tail 1·35, tarsus 0·55.

Adult Female. Upper parts olive-green, some of the scapulars and a few of the feathers on the upper back slightly washed with red; wings brownish black, the least and median series of coverts olive, like the back; the greater series of wing-coverts and the quills broadly edged with olive-shaded rufous; under-parts pale yellow, whiter and with a slightly dusky shade on the throat; under surface of the wings dark brown with the inner margins of the quills and the coverts white, the latter slightly washed with sulphur-yellow; bill and legs black; irides dark brown. Total length 3·5 inches, culmen 0·55, wing 1·85, tail 1·2, tarsus 0·55.

HAB. Island of Malanipa.

THIS Sun-bird is the second species of the "*Nectarophila*" group recorded from the Philippine Islands. It is nearly allied to *C. speratus*, from which it may be readily distinguished by the chest being bright yellow instead of scarlet, and by the abdomen being pale olive-yellow instead of dusky olive.

During the voyage of H.M.S. 'Challenger' to the Philippines three specimens of this new species were collected on Malanipa, a small island in the straits of Basilan. Two of these specimens are represented in the accompanying illustration; the third specimen, an adult male,

differs slightly from the above in having the crown more strongly shaded with reddish copper, the red mantle rather brighter, the throat shaded with violet, while on the breast are no signs of scarlet.

The species constituting this group appear to be peculiarly subject to these slight variations in their colouring, which has already been remarked upon with regard to *C. speratus*. The cause may possibly be that this species and *C. speratus*, like *C. zeylonicus* and *C. hasselti*, do not change their plumage like most other Sun-birds, but wear their brilliant garb throughout the year.



CINNYRIS ZEYLONICA.

CEYLONESE SUN-BIRD.)

- Certhia zeylonica*, Linn. S. N. i. p. 188. no. 23, "Ceylon" (1766); Gm. S. N. i. p. 482. no. 23 (1788); Lath. Ind. Orn. i. p. 285. no. 13 (1790); Bechst. Kurze Uebers. p. 180. no. 13 (1812).
- Ceylonese Creeper*, Lath. Gen. Syn. ii. p. 712. no. 13 (1781); id. Gen. Hist. iv. p. 227. no. 16 (1822).
- Certhia lepida*, Sparrm. Mus. Carls. i. pl. 35 (1786).
- Souï-manga à ceinture marron*, Aud. et Vieill. Ois. Dor. ii. pp. 37, 38, pls. 16, 17 (1802).
- Souï-manga brun et blanc*, Aud. et Vieill. tom. cit. p. 118, pl. 81.
- Certhia flaviventris*, Herm. Obs. Zool. p. 136 (1804).
- ?*Certhia citrinella*, Herm. tom. cit. p. 137.
- Certhia dubia*, Shaw, Gen. Zool. viii. p. 204 (1811).
- Cinnyris dubia*, Cuv. Règne Anim. i. p. 412 (1817).
- Cinnyris lepida*, Cuv. tom. cit. p. 412; ?Sykes, P. Z. S. 1832, p. 98. no. 132.
- Cinnyris sola*, Vieill. N. Dict. d'Hist. Nat. xxxi. p. 512, "Pondicherry" (1819); id. Enc. Méth. ii. p. 597 (1823); Less. Man. d'Orn. ii. p. 51 (1828); Jerd. Madr. Journ. xi. p. 226. no. 234 (1840); Pucheran, Rev. et Mag. de Zool. 1853, p. 483.
- Cinnyris zeylonicus*, Hahn, Vög. pt. 7, pl. 4 (1820); Vieill. Enc. Méth. ii. p. 594 (1823); Less. Man. d'Orn. ii. p. 61 (1828); Bp. Consp. Av. i. p. 409. no. 46 (1850).
- Cinnyris nigroalbus*, Less. Dict. Sc. Nat. i. p. 6 (1827, ex Aud. et Vieill. pl. 81); id. Man. d'Orn. ii. p. 26 (1828).
- Cinnyris solaris*, Less. Trait. d'Orn. p. 297. no. 28 (1831); Pucheran, Rev. et Mag. de Zool. 1853, p. 488.
- Nectarinia zeylonica*, Jard. Monogr. Sun-birds, pp. 213, 261, pl. 20 (1843); Blyth, Journ. A. S. B. xii. p. 976 (1843); Gray, Gen. B. i. p. 98 (1847); Blyth, Cat. B. Mus. A. S. B. p. 226. no. 1368 (1849); Layard, Ann. N. H. (2) xii. p. 174 (1853); Tytler, Ann. N. H. (2) xiii. p. 373 (1854); Hartl. J. f. O. 1854, p. 165; Leith Adams, P. Z. S. 1858, p. 497; Swinhoe, Ibis, 1864, p. 416; Pelzeln, Reise Novara, Vög. p. 52 (1865); Gould, B. Asia, pt. 19, pl. 4 (1867); Gray, Hand-l. B. i. p. 112. no. 1392 (1869).
- Nectarinia sola*, Gray, Gen. B. i. p. 99 (1847).
- Leptocoma zeylonica*, Cab. Mus. Hein. i. p. 104. no. 568 (1850); Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 740. no. 1082 (1856); Jerd. B. Ind. i. p. 368 (1862); Godwin-Austen, J. A. S. B. 1870, p. 267; Blanf. op. cit. 1871, p. 272; Jerd. Ibis, 1872, p. 17; Hume, Nests & Eggs Ind. B. p. 147 (1873); Ball, Str. F. 1874, p. 396; Legge, Ibis, 1875, p. 275; Giebel, Thes. Orn. ii. p. 466 (1875).
- Anthreptes sperata*, Licht. Nomencl. Av. p. 56 (1854).
- Cinnyricinclla nigralba*, Reichb. Handb. Scansoriae, p. 306. no. 719 (1851).

♂ ad. capite summo et tectricibus alarum minimis bronzino-viridibus: dorso cum tectricibus alarum majoribus et torque pectorali chokolatinis: dorso postico et gutture metallicè lilacinis: remigibus saturatè brunneis, rufo marginatis: caudâ nigrâ: corpore reliquo subtùs sulphureo, hypochondriis albicantibus: rostro et pedibus nigris: iride rufescenti-brunneâ.

♀ ad. mari dissimilis: suprâ cinerascanti-brunnea: remigibus saturatè brunneis, rufo marginatis: caudâ nigrâ, rectricibus externis albo terminatis: subtùs ut in mari colorata, gulâ et pectore superiore albis.

♂ juv. similis fœminæ adultæ, sed gutture et pectore superiore pallidè flavicantibus.

HAB. in peninsulâ Indicâ et in insulâ Ceylonensi.

Adult Male. Above—forehead, crown, nape, and lesser wing-coverts metallic bronzy green, glossed with lilac; upper back, scapulars, and median wing-coverts maroon-brown; lower back and upper tail-coverts metallic lilac, shaded with blue; tail brownish black, the outer feathers with paler ends, the other feathers very slightly edged with metallic violet; remainder of the wings dark brown, the greater coverts and quills edged with rufous brown; cheeks and ear-coverts deep coppery brown, slightly metallic, shading into dull brown behind the ear-coverts. Beneath sulphur-yellow, chin and throat metallic lilac; sides of the neck and a pectoral collar maroon-brown like the back; sides of the body, the under wing-coverts, and inner margins of the quills white; beak and legs black; irides reddish brown. Total length 4·1 inches, culmen 0·65, wing 2·25, tail 1·45, tarsus 0·75.

Adult Female. Above ashy brown shaded with olive on the lower back; a white eyebrow, and a dark streak through the eye; upper tail-coverts and tail brownish black, the former slightly edged with steel-blue, the latter with pale endings to some of the outer feathers; wings dark brown, the quills and greater coverts edged with rufous brown. Beneath white, with the chest and centre of the abdomen sulphur-yellow, the under tail-coverts washed with that colour; under surface of the wings brown, with the coverts and inner margins of the quills white; bill and legs black; irides reddish brown. Total length 3·6 inches, culmen 0·6, wing 2·1, tail 1·4, tarsus 0·6.

Young Male. Similar to the adult female, excepting that it is less ashy above and slightly more olive-brown in colour; the eyebrows yellowish; chin, throat, and under tail-coverts sulphur-yellow. Total length 3·9 inches, culmen 0·5, wing 2·0, tail 1·2, tarsus 0·6.

HAB. Ceylon, the Indian peninsula, and Assam, but apparently not found in the Himalayas, Nepaul, North-western Provinces, or Scinde.

DR. JERDON, in his highly esteemed and very useful work on the Birds of India, observes:—
“This species is spread throughout India, from the extreme south to Bengal, and is apparently not found in the North-west Provinces. It extends through Dacca into Assam. It is exceedingly abundant in Madras, more so, I think, than in Lower Bengal. It may be seen in every garden flitting from flower to flower; and it builds a very neat nest of grass, vegetable fibres, spiders’ web sometimes, with a hole at the side near the top, overshadowed by a canopy of the same

materials, and lays usually two eggs of a pale greenish tinge with small dusky spots. It has a feeble chirp like that of *Certhia familiaris*; and it has also a weak, shrill sort of song. This bird feeds on the honey of flowers and small insects which infest flowers, buds, &c. Layard states that it is very pugnacious,—abundant in the southern part of Ceylon.” In the latter country, according to Mr. Holdsworth, it is common in the low country, and frequently seen in the gardens of Colombo, but was not met with by him at Aripo. Lord Walden also mentions it as common in the south-western subdivision of that island; and in his well-known article “On the Sun-birds of the Indian and Australian Regions” (Ibis, 1870, p. 38) indorses the range assigned to this species by Dr. Jerdon. I may here remark that I have never seen specimens from beyond these limits; and it does not occur in Mr. Hodgson’s Nepaul collections.

Mr. Layard further gives us the following very interesting account of its habits (Ann. Nat. Hist. 1853, 2nd ser. xii. p. 174):—“My house in Colombo was, as is usual in the east, surrounded by a verandah, up which crept, in tropical profusion, several species of *Passiflora*; to the flowers of these came the various *Nectariniæ* for their morning and evening meals, rarely appearing in the heat of the day; they hovered about the starry flowers, thrusting in their curved bills in search of the minute insects on which they feed; occasionally they would fly into the verandah and seize a small spider from its web, or from the crevices of the walls. Then they would betake themselves to the trellis supporting the passion-flowers, or to the branches of a pomegranate close by, where they preened themselves and uttered a pleasing song. If two happened to come to the same flower (and, from their numbers, this often occurred), a battle always ensued, which ended in the vanquished bird retreating from the spot with shrill piping cries, while the conquerer would take up his position upon the flower or stem, and, swinging his little body to and fro till his coat of burnished steel gleamed and glittered in the sun, pour out his notes of triumph. All this time the wings were expanded and closed alternately.”

According to Dr. Leith Adams (P. Z. S. 1858, p. 497) it was “not seen in Scinde, and was not common in the Western Himalayas.” Some mistake as to the species must have occurred here, as the species is not found in the localities mentioned. He writes further, “It is frequently seen sucking the nectar from the flowers of the cactus. The species is common in the gardens of Poonah, in the Deccan.” At Bombay Mr. Swinhoe met with it. It was, he says, “usually in pairs, very busy about flowering bushes. They seem to prefer the large *Hibiscus* flower, hanging about it and searching with their bills the rim of the calyx for small insects. Their notes call to mind, at times, those of the Tits, at others those of White-eyes.”

“This species,” writes Dr. Jerdon, “appears to be more abundant in the Carnatic than in any other part of the peninsula. In that district it is very common, and to be seen in almost every garden, flitting about from flower to flower, its brilliant hues every now and then displayed to the eye as it catches their reflection by the sun.”

Mr. Blyth gives the following account of the species:—“Very abundant in the neighbourhood of Calcutta throughout the year. It has a weak, shrill chant, delivered in the same key as the song of the British *Accentor modularis*, and frequently emits a low, weak chirp, that recalls to mind the analogous note of *A. regulus*, or of *Certhia familiaris*. The natives here take them with birdlime, and after plucking out the wing primaries to prevent their fluttering, tie them to a stick and carry rows of them thus about for sale. These may be kept alive for several days on

merely sugar and water; and I have heard one sing that had no other diet for some days; but raspberry or other fruit jam is a better kind of food on which to keep these nectar-feeding birds. The members of the present genus, however, by no means confine themselves to a regimen of this kind; and I have taken so large a spider from the stomach of *N. asiatica* as to have wondered how it could have been swallowed."

Mr. Morgan gives us some information as to its nidification:—"It breeds all over the plains of Southern India. The bird often selects a cobweb in which to build its nest; and this is so ingeniously built that it is impossible to detect the existence of the nest, unless the cobweb is examined." For additional information respecting the breeding of this species, I shall extract the following portion from the elaborate account given by Mr. Hume in his admirable work, entitled 'Nests and Eggs of Indian Birds.' He writes, "it lays at least twice a year, as I have found the eggs both in February and August; but the breeding-season is very variable. Mr. Davison saw a nest containing young birds in Captain Mitchell's verandah at Madras in December. A pair had built in the same place year after year, which is their habit.

"The nests, which are generally attached to the terminal twigs of branches, at heights from 10 to 3 feet from the ground, are most lovely little structures, hanging purses with the aperture near the top, with a little projecting portico over the doorway. An average-sized nest will measure externally from top to bottom from 5 to 6 inches in length, and about 3 in diameter. Internally, from the lower edge of the entrance, it will be about 2 inches deep and about 1.5 in diameter. The body of the nest is generally chiefly composed of *very fine* grass or vegetable fibre. The egg-chamber is very softly lined with feathers or silky vegetable down, and the exterior profusely ornamented with tiny dry flower-buds, scraps of white lichen, dry white leaves, glistening straw, and any thing else that happens to be handy and that appears to have attracted the little bird's attention in any way. The nests are always hung to some slender twig, over which the upper surface of the nest is firmly worked with fibres and vegetable down. Sometimes long pendants of leaves, lichens, &c. hang down from the nest."

From the capture of birds on their nests with birdlime, Captain Beavan ascertained "that the males of this species take part in incubation, a fact not observed in *A. asiatica*."

This species only lays two eggs, which, says Mr. Hume, "in shape, size, and colouring bear the closest resemblance to those of *A. asiatica*. They are moderately broad oval eggs, sometimes, however, a good deal elongated, and usually a good deal pointed towards one end; the shell is delicate and close-grained, but almost entirely devoid of gloss: the ground-colour varies much: in some it is nearly pure white; but generally it is a dingy greenish or brownish white, much freckled, clouded, and streaked with minute greyish-brown or brown markings, which commonly form an irregular zone round the larger end, and sometimes form a confluent cap. In some eggs the whole of the rest of the surface beyond the zone or cap is devoid or almost devoid of markings. In others the whole surface of the egg is so closely speckled all over as almost entirely to conceal the ground-colour, the variations in these respects reminding one much of similar variations in the eggs of many species of Larks.

"The eggs vary in length from 0.6 to 0.7, and in breadth from 0.43 to 0.49 inch; but the average is 0.65 by 0.47 inch."

Mr. Blyth (Journ. As. S. Bengal, xii. p. 976) writes:—"Very abundant in the neighbour-

hood of Calcutta throughout the year, the male retaining its bright colours at all seasons. The young in nestling-garb resemble the female, but have the throat and flanks as yellow as the breast, a streak over the eye more distinct and yellow." The statement, indorsed by Dr. Jerdon, that the male retains its bright colours at all seasons, appears to me highly improbable, although I am unable positively to refute it, and must acknowledge that specimens in transitional plumage are rare in collections.

The slight variations in plumage observed in certain specimens have been dwelt upon at some length by Viscount Walden (*Ibis*, 1870, p. 38); and those of my readers who may wish to enter more deeply into this subject I would refer to that article as one deserving special attention. It will be seen from the foregoing descriptions that I consider Dr. Jerdon to be correct in the plumages he assigns to the adult female and young male. In support of this I may refer not only to the description given by Mr. Blyth of the "young in nestling-garb," but also to the specimen from which I have described the "young male" in the present work: that specimen was labelled " σ juv. Malabar" (*Mus. Walden*), and has one metallic-coloured feather on the throat, indicating that it would have assumed the adult male plumage; and in none of the white-throated specimens do I find such symptoms.

Out of the Indian specimens which I have examined I find the measurements vary as follows—culmen 0.55 to 0.70 inch, wing 2.05 to 2.25, tarsus 0.60 to 0.75. These smaller measurements agree well with those of Ceylonese specimens. "Old males," writes Viscount Walden, "from Bengal and Maunbhoom are larger than those from Malabar. These again are larger than those from Ceylon. In the northern race the metallic hood seems to descend lower down the nape. In the colouring of the plumage I can discover no difference." These slight varieties are certainly not, in my opinion, of specific value, but merely what we might expect to find by the study of a large series of specimens from many different localities.

Of the places not previously mentioned here where this bird has been noticed, I must remark:—Mysore (*Day*); Coorg (*Mus. Walden*); Pondicherry, where M. Leschenault collected the type of *Cinnyris sola*, Vieill.; Tranquebar, whence came the types of *Certhia flaviventris* and *C. citrinella*, Herm.; Colonel Sykes collected his *Cinnyris lepida* in the Deccan; Singbhoom (*Tickell*); Maunbhoom and Kushghar (*Beavan*); Kamtee (*Dr. Hinde, Mus. Brit.*); Sumbulpore and Raipoor districts (*Blewitt*); Khasia Hills (*Godwin-Austen*). It is incorrectly entered by Hahn as inhabiting the Philippine Islands.



CINNYRIS MINIMUS.

(TINY SUN-BIRD.)

Cinnyris minima, Sykes, P. Z. S. 1832, p. 99; Jerdon, Madras Journ. xi. p. 226. no. 235 (1840); Bp. Consp. Av. i. p. 409. no. 47 (1850).

Nectarinia minima, Tickell, J. A. S. B. ii. p. 277. no. 38 (1833); Blyth, op. cit. xii. p. 978 (1843); Gray, Gen. B. i. p. 98 (1847); Blyth, Cat. B. Mus. A. S. B. p. 226. no. 1369 (1849); Layard, Ann. Nat. Hist. 2nd ser. xii. p. 175. no. 60 (1853); Hartl. J. f. O. 1854, p. 165.

Arachnothera minima, Gray, Hand-l. B. i. p. 112. no. 1395 (1869).

Nectarinia minuta, Jard. Mongr. Sun-birds, pp. 224, 265, fig. titlepage (1843, lapsu cal.).

Nectarophila minima, Reichb. Handb. Scansoriæ, p. 282. no. 654, pl. 568. figs. 3873-74 (1854); Walden, Ibis, 1870, p. 40; Holdsworth, P. Z. S. 1872, p. 434.

Leptocoma minima, Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 742. no. 1869 (1856); Jerd. B. Ind. i. p. 369 (1862); Hume, Str. F. 1877, p. 42.

♂ *ad.* suprâ saturatè ruber, tectricibus alarum minimis et medianis dorso concoloribus: capite summo metallicè viridi: loris, genis et regione paroticâ nigris: dorso postico et uropygio latè rubris chalybeo lavatis: tectricibus alarum majoribus, remigibus rectricibusque nigris: mento gulâque metallicè lilacinis: præpectore saturatè rubro: pectore, abdomine et subcaudalibus flavicanti-albis: fasciis pectoralibus sulfureis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* suprâ olivascenti-brunnea, tectricibus alarum minimis et medianis dorso concoloribus: tectricibus majoribus remigibusque nigris, pallidiùs marginatis: dorso postico, uropygio et supracaudalibus saturatè rubris: rectricibus saturatè brunneis, rufescenti-olivaceo marginatis: subtùs fulvescens, pectore summo et subcaudalibus flavicantibus.

♂ *juv.* similis feminæ adultæ, sed capite et collo olivaceis et subtùs pallidè flavescens.

Hab. in peninsulâ Indicâ et in insulâ Ceylonensi.

Adult Male. Forehead and crown metallic green; lores, cheeks, and ear-coverts black; back and sides of the neck, upper back, scapulars, and least and median series of wing-coverts dark red; lower back, rump, and upper tail-coverts bright red, strongly glossed with steel-blue, making these parts in certain lights appear rich metallic lilac; remainder of the wings and the tail brownish black; chin and throat metallic lilac; crop and front of the chest dark red; remainder of the breast, abdomen, thighs, and under tail-coverts yellowish white; pectoral tufts sulphur-yellow; under wing-coverts and inner margins of the quills white; bill and legs black; irides dark brown. Total length 3·4 inches, culmen 0·55, wing 1·8, tail 1·25, tarsus 0·5.

Adult Female. Upper parts olive-brown, including the least and median series of wing-coverts; remainder of the wings dark brown, with the edges of the feathers paler, and shaded with olive on the quills; lower back and upper tail-coverts deep red; tail dark brown, the feathers edged with reddish olive; underparts pale buff, slightly yellower on the centre of the breast and on the under tail-coverts; bill and legs black; irides dark brown. Total length 3·3 inches, culmen 0·45, wing 1·75, tail 1·2, tarsus 0·5.

Young Male. Differs from the adult male in having the upper half of the head and neck olive, and the entire underparts very pale yellow.

HAB. South-west India and Ceylon.

This beautiful little Sun-bird, the smallest of the family, is distinguished from the other members of the "Nectarophila" group by the upper back, lesser wing-coverts, and front of the breast being of a uniform deep red, while the lower breast and abdomen are yellowish white.

It is found in India, only inhabiting here the western side, from the Ghauts, above Bombay, to the extreme south of the peninsula, and the island of Ceylon.

Owing to the very slight information I could find in published works respecting this little Sun-bird, I was led to consider it a rare species; and therefore the following notes sent to me by Messrs. Hume and Davison have proved to be of special value:—"Common as this lovely little species is in all the hilly tracts of the Indian peninsula, in the Ghauts, as at Matheran (above Bombay), and Mahableshwar, all over the Neilgherries, in the Wynaad, and the hills of South Travancore, from all of which localities we have obtained specimens, its changes of plumage, nay, even the distinctive characters of the sexes, seem to be but imperfectly understood.

"At all seasons and at all times the female is characterized by a dull red rump. The males, on the other hand, in the non-breeding plumage, in which they in all other respects assume the garb of the female, retain invariably the amethystine-glossed rump, and usually a little red about the shoulder of the wing.

"About April some of the males begin to doff the brilliant nuptial plumage; early in May some may be obtained in full non-breeding plumage; but during May some may still be obtained in the nuptial garb. In June most of the birds have assumed the complete non-breeding dress; but a few will still be found that have only partially moulted. After the first of July not a bird is to be seen in the nuptial dress.

"During September they begin to resume their wedding garb; by the end of that month a good many males are in perfect plumage; and by the middle of October every bird is in the gay nuptial attire.

"Though not strictly migratory, this species moves about a great deal; and though there are places in the Neilgherries at elevations of 5000 or 6000 feet, where some may be seen at all seasons of the year, the mass of them move higher in summer, and descend a great deal lower in the winter. Thus in the Chinchona plantations at Neddivuttum, at an elevation of about 6000 feet, some specimens may be seen at all seasons; but it is not till the first burst of the south-west monsoon, between the 10th and 15th of June, that a single bird is to be seen higher up at Ootacamund. After this they swarm in every garden where there are flowers, and especially about the apple-blossoms of the orchards. By the end of October they have all left Ootacamund, and have descended to a lower level, while, again, in January and February they abound at the base of the hills, as in the Moyar valley, in the Wynaad.

"They are very restless, active little birds, hopping about ceaselessly from twig to twig and flower to flower, and using their legs probably more than their wings, keeping up all the time a soft uninterrupted *chip, chip, chip*; very rarely, if ever, are they seen poised Humming-bird-like in front of any flower. So far as our observations go they always perch to feed, and probably

feed quite as much on insects as on nectar. They may be often found in low brushwood, especially in the thickets of the wild raspberry, and along the outskirts of all the sholas, or strips of jungle which run down every ravine on the hill-side. About the Chinchona plantations they are so numerous when the trees are in flower in November, you might probably shoot a dozen specimens any morning off a single tree.

"There is scarcely any appreciable difference in the size of the sexes; but the males are possibly a trifle larger.

"*Male*. Length 3·5 to 4 inches, expanse 5·37 to 6, tail from vent 1 to 1·25, wing 1·8 to 1·95, tarsus 0·43 to 0·5, bill at front from margin of feathers 0·43 to 0·5.

"The females average from 3·25 to 3·5, with an expanse of 5·5; and their bills are, as a rule, slightly shorter than those of the males."

Mr. Hume further remarks (Str. F. 1877, p. 42):—"This beautiful little bird is common on the edges of forest, and is slightly gregarious in habit, three or four hunting about together amongst the boughs of some gamboge tree, which is a tree they seem particularly to like. They are not at all shy; and when sitting quiet in thick brushwood, I have seen them perch inquisitively within a few feet of my face. I have not obtained the eggs of this species; but Mr. Ferguson observed a pair commence a hanging nest at the extreme end of a gamboge-bough at some height from the ground. Unfortunately the birds left the nest unfinished."

Colonel Sykes, who first described this species, writes:—"Met with only in the Ghauts. White ants and larvæ of flies were found in the stomach. One bird was seen sucking honey." Dr. Jerdon (*l. c.*) observes:—"This beautiful little species has only been found on the west coast of India, extending from about 18° N. lat. to Travancore, and passing over into Ceylon. Layard states that it replaces *N. zeylonica* in the north of the island. It is by no means common. I have seen it up to nearly 3000 feet on the slopes of the Nilgherries, and also near the level of the sea in Malabar."

In Ceylon it has been procured by Mr. Holdsworth, who remarks (P. Z. S. 1872, p. 434):—"I do not remember seeing this bird in the Aripo district, although Mr. Layard states that it is common in the north of the island. It is occasionally seen at Colombo."

In the Marquis of Tweeddale's collection I have examined specimens from the Mahabaleshwar hills collected by Colonel Sturt, which I have here figured and described. He also possesses a female marked "breeding" from Kunkunbe, in the Goa hills, and a specimen from Belgaum.



CINNYRIS AURORA.

(PHILIPPINE ORANGE-CHESTED SUN-BIRD.)

Cyrtostomus aurora, Tweeddale, P. Z. S. 1878, p. 620.

♂ *ad.* suprâ olivascenti-flavus, tectricibus alarum minimis scapularibusque dorso concoloribus, medianis et majoribus remigibusque nigricantibus olivaceo marginatis: caudâ nigrâ, rectricibus extimis latè albo terminatis: plumis paucis frontalibus chalybeo-viridibus: plumis antecocularibus nigris: genis et gutture toto metallicè violaceis, lineâ malari vix chalybeo-viridi, regione præpectoralis metallicè viridi: pectore latè aurantiaco: corpore reliquo subtùs flavo, hypochondriis et tibiis olivascentibus: subalaribus flavis: rostro et pedibus nigris: iride saturatè brunnâ.

♀ *ad.* mari similis sed plumis frontalibus metallicis nullis et subtùs omnino flava, supercilio flavo distinguenda.

HAB. in insulâ Philippinensi "Palawan" dictâ.

Adult Male. Upper parts yellowish olive; the feathers of the forehead tipped with steel-blue; wings dark brown, all the feathers broadly edged with yellowish olive; tail black, with the four outer feathers on each side tipped with white, about one third of the outermost one being of that colour; sides of the head olive like the back, with the eyelids and feathers in front of the eyes black; chin and throat metallic violet, slightly shaded on the sides and on the crop with green; breast and under tail-coverts and pectoral tufts bright yellow, shading into deep orange-yellow on the front half of the chest; under surface of the wings brown, with the inner margins of the quills and the coverts white, the latter shaded with yellow; bill and legs black; irides dark brown. Total length 4.1 inches, culmen 0.75, wing 2.15, tail 1.6, tarsus 0.6.

Adult Female. Upper parts similar to those in the adult male, excepting that it has no metallic colouring on the forehead, and possesses a broad pale yellow eyebrow; cheeks and the entire underparts bright yellow, fading into buff on the chin; flanks slightly tinged with olive; under surface of the wings dark brown, with the inner margins of the quills and the coverts white, the latter tinted with yellow; bill and legs black; irides dark brown. Total length 4.3 inches, culmen 0.75, wing 2, tail 1.6, tarsus 0.6.

HAB. The island of Palawan, in the Philippines.

THE present species is closely allied to *C. jugularis*; but the male differs from typical specimens of that bird in having the frontal feathers tipped with steel-blue and the front half of the chest deep orange.

Although, from our present knowledge of the subject, I feel bound to regard *C. aurora* as a good species, distinct from *C. jugularis*, I think it possible that these differences will not prove so important as they at first appear.

On examining a large series of specimens of birds not to be separated from *C. jugularis*, I find in some examples that the frontal feathers are more or less tipped with steel-blue: in one specimen in the Marquis of Tweeddale's collection, procured by Mr. Everett in June on the

island of Basilan, the colouring of the frontal feathers is the same as in *C. aurora*, and the front of the chest is slightly shaded with orange; while another adult in the same collection, killed in May, has no metallic lustre on the forehead, and no orange shade on the chest.

The specimens of *C. jugularis* from Zebu appear generally to have the front half of the chest shaded with orange; and more rarely the frontal feathers are slightly tipped with steel-blue. At the base of the metallic throat many specimens of *C. jugularis* have two or three maroon feathers; but this is not a constant character, even in specimens from the same island; so it will be seen that *C. jugularis* goes through certain modifications of plumage which more or less approach the coloration of *C. aurora*. What may be the true limits of these variations I am unable at present to determine; but possibly future discovery will prove *C. aurora* to be included within these limits.

The present form has been described as a distinct species by the Marquis of Tweeddale from two specimens—an adult male and female collected by Mr. Everett at Puerta Princesa, on the island of Palawan, respectively on the 30th of November and the 1st of January; and from the labels attached to them I have taken the colouring of the bill, irides, and legs.

By a lapsus calami, Lord Tweeddale has given the irides in the male as "deep crimson;" the label, however, gives them as deep brown. I have been unable to distinguish the difference in size between the sexes which Lord Tweeddale's measurements would seem to indicate.

I have here to thank the Marquis of Tweeddale for the loan of the original specimens, the male of which I have here figured on the same Plate as *C. flagrans*.

CINNYRIS FLAGRANS.

(FLAME-BREASTED SUN-BIRD.)

Æthopyga flagrans, Oustalet, Journ. de l'Institut, 1876, p. 108.

♂ *ad.* fronte et vertice violaceis, metallicè cyanescenti-viridi nitentibus : nuchâ, collo postico, dorso et scapularibus olivascanti-flavis, interscapulis aurantiaco lavato, uropygio magis olivaceo : supracaudalibus metallicè viridibus : rectricibus nigris metallicè violaceo aut viridi marginatis : alis nigris, plumis olivaceo marginatis : capite laterali, mento gulâque nigris : pectore pallidissime olivascanti-flavo : strigâ latâ aurantiacâ a gulâ medianâ usque ad pectus extendente, versus abdomen pallidiore : subcaudalibus pallidè olivascanti-flavis : remigibus infrâ brunneis, intûs albidis : subalaribus albis vix flavo lavatis : rostro et pedibus brunnescenti-nigris : iride saturatè brunneâ.

Hab. in insulâ Philippinensi "Luzon" dictâ.

Adult Male. Forehead and crown violet, shaded with metallic bluish green ; nape, back of the neck, back and scapulars olive-yellow, shaded with orange between the scapulars, and more olive on the rump ; upper tail-coverts metallic green ; tail black, with the feathers edged with metallic violet and green ; wings black, the feathers edged with olive ; sides of the head, chin, and throat black ; breast very pale olive-yellow ; from the middle of the throat, below the chin, extends down the centre of the body a sharply defined broad band of deep orange, which gradually fades away entirely on the abdomen ; under tail-coverts pale olive-yellow ; under surface of the wings brown, with the coverts and the inner margins to the quills white, the former slightly washed with yellow ; bill and legs brownish black ; irides dark brown. Total length 4 inches, culmen 0·7, wing 2, tail 1·3, tarsus 0·5.

HAB. Island of Luzon, in the Philippine archipelago.

THE type specimen, apparently a fully adult male, is in the Museum of the Jardin des Plantes, in Paris.

It undoubtedly belongs to the large genus *Cinnyris* ; but, from the very peculiar colouring of the plumage, it cannot be placed in any of the groups which I have hitherto recognized, possessing, as it does, a broad flame-coloured band down the centre of the throat and breast—a character which at the present time is quite sufficient to distinguish this bird from all the other members of the family.

M. Oustalet, who first recognized this species as new, found it amongst a small collection sent home from the Philippines by a young traveller, M. L. Laglaize, who collected it on the 25th of June at a place called Lagune, on the island of Luzon.

M. Oustalet, in his original article upon this species, makes a few remarks upon the value of some of the commonly received genera of Sun-birds, with a slight sketch of their geographical distribution, and observes that, previous to the discovery of this bird, only two species were known from the Philippines, viz. *C. speratus* and *C. jugularis*. Since M. Oustalet wrote the

above-mentioned article last year, Dr. Steere has collected in these islands five new species; and another new one has still more recently been brought home by H.M.S. 'Challenger.'

Why *C. flagrans* should have been referred to the genus *Æthopyga* is not very apparent, as it neither possesses the yellow patch nor the loose downy feathers on the back which are the most obvious characters of that genus, while in the present bird the tail also is square as in typical *Cinnyris*.

I am indebted to M. Oustalet for being able to describe and figure this type specimen, which is at present unique in the Paris Museum.



CINNYRIS JUGULARIS.

CINNYRIS JUGULARIS.

(PHILIPPINE YELLOW-BREASTED SUN-BIRD.)

? *Le Grimpereau des Philippines*, Briss. Orn. iii. p. 613. no. 4, pl. 30. fig. 2 (1760).

Le Petit Grimpereau des Philippines, Briss. tom. cit. p. 616. no. 6, pl. 32. fig. 5; Montb. Pl. Enl. 576. fig. 3.

Le Grimpereau olive des Philippines, Briss. tom. cit. p. 623. no. 10, pl. 32. fig. 4; Montb. Pl. Enl. 576. fig. 4.

Certhia jugularis, Linn. S. N. i. p. 185. no. 7 (1766, ex Briss. no. 6); P. L. S. Müll. S. N. ii. p. 256. no. 7 (1773); Gm. S. N. i. p. 474. no. 7 (1788).

? *Certhia philippina*, Linn. S. N. i. p. 187. no. 21 (1766, ex Briss. no. 4); P. L. S. Müll. S. N. ii. p. 260. no. 21 (1773); Lath. Ind. Orn. i. p. 293. no. 9 (1790); Bechst. Kurze Uebers. p. 178. no. 9 (1812).

Certhia tricollaris, P. L. S. Müll. S. N. Anhang, p. 99. no. 31 (1776, ex Buff. fig. 4).

Premier Grimpereau de l'Isle de Luçon, Sonn. Voy. Nouv. Guin. p. 63, pl. 30. fig. A (1776).

Second Grimpereau de l'Isle de Luçon, Sonn. l. c. fig. B.

Souï-manga à gorge pourprée, Montb. Hist. Ois. v. p. 506 (1778).

? *Philippine Creeper*, Lath. Gen. Syn. ii. p. 711. no. 12 (1781).

Grey Creeper, var. α , Lath. tom. cit. p. 714. no. 15 α ; id. Gen. Hist. B. iv. p. 231. no. 19.

Certhia quadricolor, Scop. Del. Faun. et Flor. Insub. ii. p. 91. no. 69 (1786, ex Sonn.).

Certhia gularis, Sparrm. Mus. Carls. pl. 79, "Martinique" (!) (1786); Lath. Ind. Orn. i. p. 300. no. 69 (1790); Bechst. Kurze Uebers. p. 190. no. 7 (1812).

Certhia currucaria, var. β , Lath. Ind. Orn. i. p. 286. no. 15 β (1790).

Souï-manga à gorge bleue, Aud. et Vieill. Ois. Dor. ii. pp. 51, 52, pls. 29, 30 (1802).

Certhia currucaria et jugularis, Bechst. Kurze Uebers. p. 180. no. 15 (1812).

Cinnyris zeylonicus, Cuv. Règne Anim. i. p. 412 (1817, ex Buff. fig. 4); Vieill. N. Dict. d'Hist. Nat. xxxi. p. 507 (1819); id. Ency. Méth. ii. p. 594 (1823).

Certhia philippinensis (part.), Meyen, Reise, Th. iii. p. 206 (1834).

Certhia sperata ♀, Meyen, tom. cit. p. 207.

Nectarinia jugularis, Jard. Monogr. Sun-birds, pp. 228, 267, pl. 25. fig. 2 (1842); Gray, Gen. B. i. p. 98 (1847); Martens, J. f. O. 1866, p. 13. no. 49.

Cœreba gularis, Gray, Gen. B. i. p. 101. no. 4 (1847); Bp. Consp. Av. i. p. 400. no. 4 (1850).

Nectarinia pectoralis, Gray, Gen. B. iii. App. p. 33 (1849, ex Montb. fig. 4).

Cyrtostomus jugularis, Cab. Mus. Hein. i. p. 105. no. 570 (1850); Reichb. Handb. Scansoriæ, p. 308. no. 723, pl. 570. fig. 3889 (1854).

Cyrtostomus gularis, Reichb. tom. cit. p. 310. no. 728, pl. 589. fig. 3997.

Arachnothera jugularis, Gray, Hand-l. B. i. p. 112. no. 1389 (1869).

Arachnechthra jugularis, Walden, Ibis, 1870, p. 27; id. Trans. Zool. Soc. ix. p. 200 (1875).

♂ ad. similis *C. frenato* sed strigâ superciliari et lorali nullis: suprâ magis viridescens, et gutture laterali

viridi nitente, maculâ anteorulari nigrâ, regione paroticâ saturatiore, pectore summo vix aurantiaco lavato distinguendus: fasciis pectoralibus pectore concoloribus.

♀ *ad.* similis feminae *C. frenati* sed strigâ pallidâ lorali nullâ distinguenda: suprâ minus flavicans, subtùs pallidior.

HAB. in insulis Philippensibus.

Adult Male. Very similar to *C. frenatus*, from which it differs in not possessing an eyebrow, and in having no yellow loreal streak, in the upper parts being slightly greener, by the metallic throat glossed towards the sides with deep green. There is a black patch in front of the eye, the ear-coverts are darker, and the breast is slightly shaded with orange towards the base of the metallic throat. Total length 4·5 inches, culmen 0·75, wing 2·2, tail 1·7, tarsus 0·6.

Adult Female. Very similar to that of *C. frenatus*, but with the upper parts less yellow, and the underparts rather paler. It has a pale yellow eyebrow, but no loreal streak. Total length 3·9 inches, culmen 0·7, wing 2·1, tail 1·6.

HAB. Philippine Archipelago.

THE present species is confined to the Philippines, where it has been met with in nearly all the islands from Luzon to Mindanao; but as Dr. Steere did not procure it in Palawan, it would appear not to extend so far westward as that island.

It is most nearly allied to *C. frenatus*, from which bird it differs in not possessing the yellow loreal streak, and in the sides of the metallic throat being shaded with green instead of blue, and from the other members of this group in the pectoral tufts being of the same colour as the breast.

It usually, though not invariably, has some of the yellow feathers towards the dark metallic plastron shaded with orange; and the maroon and black breast-band, possessed by several of this group, is in the present species absent, or merely indicated by a few stray feathers. A specimen collected by Dr. Meyer in Zebu has some of the frontal feathers tipped with metallic violet, and a very distinct eyebrow of that colour.

It has been recorded by Dr. Meyer from Luzon, whence also came the specimens which furnished the subject of the early description by Sonnerat. I have examined specimens from Manila in Mr. Gould's cabinet, on the authority of Mr. Hugh Cuming, as well as those collected by Dr. Steere in Panay and Mindanao, and those obtained by Dr. Meyer in the Marquis of Tweeddale's cabinet, procured in Guimaras and Negros in March, and in Zebu in April. The latter, a male and female, form the subject of my plate and descriptions.



PHYLLOCLADUS DIVERGENS

CINNYRIS FRENATUS.

(AUSTRALIAN YELLOW-BREASTED SUN-BIRD.)

Nectarinia frenata, S. Müll. Verhandl. p. 173 (1843); id. op. cit. Zool. Av. p. 61. no. 9, pl. 8. f. 1 (1846); Gray, P. Z. S. 1858, p. 173; id. P. Z. S. 1860, p. 348; id. P. Z. S. 1861, p. 433; Wallace, P. Z. S. 1862, pp. 335, 342; Brüggem. Abhandl. nat. Ver. Bremen, v. p. 73.

Nectarinia flavigastra, Gould, P. Z. S. 1843, p. 104; id. Voy. Sulphur, p. 43, pl. 24 (1844).

Nectarinia australis, Gould, P. Z. S. 1850, p. 201; Macgillivray, Voy. Rattlesnake, ii. App. p. 357 (1852); Ramsay, Ibis, 1865, p. 85; Gould, Handb. B. Australia, i. p. 584 (1865); id. B. Australia, Suppl. pl. 45 (1869); Newton, Zool. Rec. vii. p. 46; Diggles, Orn. Australia; Ramsay, P. Z. S. 1875, p. 598.

Cinnyris frenatus, Bp. Consp. Av. i. p. 408 (1850); Rosenberg, J. f. O. 1864, p. 123.

Cyrtostomus frenatus, Reichb. Handb. Scansoriæ, p. 309. no. 726, pl. 589. fig. 3998 (1854).

Cyrtostomus australis, Reichb. tom. cit. p. 309. no. 727, pl. 589. figs. 3999-4001.

Arachnothera frenata, Gray, Hand-l. B. i. p. 112. no. 1387 (1869).

Arachnothera australis, Gray, tom. cit. no. 1388.

Arachnothera flavigastra, Gray, tom. cit. no. 1391.

Arachnechthra frenata, Walden, Ibis, 1870, p. 26; id. Tr. Z. S. viii. p. 71 (1874).

♂ *ad.* suprâ flavicanti-olivaceus: alis saturatè brunneis latè olivaceo marginatis: caudâ nigrâ, rectricibus quatuor externis albo terminatis: capite laterali olivaceo: supercilio flavido indistincto: loris flavidis: subtùs lactè flavus: gutture metallicè violaceo, chalybeo lateraliter nitente: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* similis mari adultæ, sed subtùs omnino flava.

Hab. in regione Austro-Malayanâ et in Australiâ septentrionali.

Adult Male. Upper parts yellowish olive; wings dark brown, all the feathers broadly edged with yellowish olive; tail black with the four outer feathers on each side tipped with white, about one third of the outermost one being of that colour; sides of the head olive, with an eyebrow and a streak from the lore yellow; underparts uniform bright yellow, with no distinctly coloured pectoral tufts; chin and throat metallic violet, slightly shaded with steel-blue on the sides; under surface of the wings brown, with the inner margins of the quills and the under wing-coverts white, the latter tinted with yellow; bill and legs black; irides dark brown. Total length 4·4 inches, culmen 0·85, wing 2·3, tail 1·6, tarsus 0·6.

Adult Female. Similar in plumage to the adult male, excepting that the chin and throat are yellow, uniform with the breast. Total length 4·5 inches, culmen 0·85, wing 2·2, tail 1·5, tarsus 0·6.

Young Male. Similar in plumage to the female, but with a broad metallic violet band down the centre of the throat.

HAB. Celebes, Molucca Islands, New Guinea, islands of Torres Straits, and North-eastern Australia.

THE present species belongs to the yellow-breasted section of the Asiatic "olive-backed" group (*Cyrtostomus* of Cabanis). In this section there are six very closely allied forms; but the present one may be recognized at once by its possessing a pale-yellow loreal band, as well as a superciliary streak of that colour. It is most nearly related to *C. jugularis*, and, like that bird, differs from the other members of the group by the pectoral tufts being of the same colour as the breast.

This species has a very extended range, being found in the Celebes and the Sula Islands. Mr. Wallace has obtained it in Batchian, Morotai or Morty Island, Ternate, Mysol, Ceram, Kaioa Island, and the Aru Islands. I have in my collection a skin said to have come from Gilolo. It is also probably found all over New Guinea, as Count Salvadori received it from Dorey (*Bruijn*), while Messrs. Petterd and Broadbent obtained specimens near Port Moresby during Mr. O. C. Stone's expedition to New Guinea, and both Signor D'Albertis and Dr. James have met with it in Yule Island. As will be seen below, during the voyage of the 'Rattlesnake,' Mr. Macgillivray procured it in the islands of Torres Straits; and it is frequent in collections from Cape York, ranging southward into Queensland.

It is evidently the Sun-bird mentioned by Lesson (Voy. Coq. Zool. i. p. 344) as abundant at Port Praslin (New Ireland), where, according to him, its native name is "Sic-sic." It was also collected in New Ireland during the voyage of H.M.S. 'Sulphur,' by Mr. Goodridge, and was described by Mr. Gould under the title of *Nectarinia flavigastera* from a female specimen; and in 1850 he described the male from the east coast of Australia as *N. australis*, and even in his later works insists on its being distinct from *C. frenatus*; but the characters he assigns are not recognizable, and, as I have examined many specimens, I have no doubt of the identity between the Australian specimens and those which I have here figured and described from Batchian Island. Mr. E. P. Ramsay, in his "List of birds from Port Denison, Queensland" (*Ibis*, 1865, p. 85), gives the following very interesting account of its habits:—"According to Mr. Rainbird, numbers of this beautiful little Sun-bird may be seen, on bright mornings, among the leafy tops of the mangrove-belts near Port Denison. They are there ever darting out to capture some insect on the wing, returning and disappearing again in the thick foliage, or perching upon some topmost twig to devour their captures and show their shining purple breasts glittering in the sun. During the hottest part of the day the Sun-birds betake themselves to the thick scrub, which in many places runs down quite to the water's edge. They breed in the months of November and December. One pair chose a little break in the scrub, within a few yards of the water, where, facing the rising sun, they constructed their nest, suspending it by the top from the dead twig of a small shrub, at the foot of a large 'Bottle-tree' (*Sterculia rupestris*). The nest is of an oval form, much resembling and suspended in the same way as that of *Acanthiza lineata*, with a small hood over the opening, which is near the top. It is composed of fibrous roots and shreds of cotton-tree (*Gomphocarpus fruticosus*) bark, firmly interwoven with the webs and cocoons of various spiders, and a few pieces of white sea-weed ornamenting the outside. It is lined with feathers and the silky native cotton, and is about 5 inches long by 3½ inches in diameter."

I must now refer to Mr. Gould's 'Handbook to the Birds of Australia,' from which I shall quote at some length. Mr. Macgillivray writes to him:—"This pretty Sun-bird appears to be distributed along the whole of the north-east coast of Australia, the adjacent islands, and the

whole of the islands of Torres Straits. Although thus generally distributed, it is nowhere numerous, seldom more than a pair being seen together. Its habits resemble those of the *Ptilotes*, with which it often associates, but still more closely to *Myzomela obscura*: like these birds, it resorts to the flowering trees to feed upon the insects which frequent the blossoms, especially those of a species of *Sciadophyllum*. This singular tree is furnished with numerous spike-like racemes of small scarlet flowers, which attract numbers of insects, and thus furnish an abundant supply of food to the present bird and many species of the *Meliphagide*. Its note, which is a sharp shrill cry, prolonged for about ten seconds, may be represented by 'Tsee-tsee-tsee-tss-s-s-s-s-s.' The male appears to be of a pugnacious disposition, as I have more than once seen it drive away and pursue a visitor to the same tree; perhaps, however, this disposition is only exhibited during the breeding-season." He then mentions finding two of their nests at Cape York on the 29th of November, one of which contained a young bird and an egg. "The egg was pear-shaped, generally and equally mottled with obscure dirty brown on a greenish-grey ground." A nest he took at Mount Ernest, Torres Straits, differed from those he found at Cape York "in having over the entrance a projecting fringe-like hood composed of the panicles of a delicate grass-like plant. It contained two young birds;" and he "saw the mother visit them twice with an interval of ten minutes between; she glanced past like an arrow, perched on the nest at once, clinging to the lower side of the entrance and looking round very watchfully for a few seconds before feeding the young, after which she disappeared as suddenly as she had arrived."



CINNYRIS ANDAMANICUS.

(ANDAMAN SUN-BIRD.)

Arachnechthra frenata, Ball, J. A. S. B. xli. p. 280 (1872); id. Str. F. 1873, p. 65.

Arachnechthra flammazillaris?, Walden, Ibis, 1873, p. 312.

Arachnechthra andamanica, Hume, Str. F. 1873, p. 404; id. Str. F. 1874, pp. 60, 105, 109. 198.

♂ *ad.* suprà *C. flammazillari* similis: capite laterali pileo concolori: supercilio indistincto pallidè flavo: subtùs pallidissimè flavus: mento gulâque saturatè metallicè violaceis, lateraliter smaragdineo angustè marginatis: torque præpectoralis sordidè coccineo olivaceo lavato: fasciis pectoralibus lætè flavis.

♀ *ad.* similis mari adulto, sed subtùs pallidè flava: supercilio magis distincto.

♂ *juv.* similis feminæ adultæ, sed supercilio minùs distincto et gutture medio saturatè violaceo.

Hab. in insulis Andamanicis.

Adult Male. Similar in colour above to *C. flammazillaris*; sides of the head of the same colour as the crown, with an indistinct pale yellow eyebrow; underparts very pale yellow; chin and throat deep metallic violet, rather narrowly edged on the sides with emerald-green; at the base of the metallic throat a narrow olive-shaded maroon collar; pectoral tufts bright yellow; bill and legs black; irides dark brown. Total length 4·2 inches, culmen 0·85, wing 2·1, tail 1·6, tarsus 0·6.

Adult Female. Similar in plumage to the adult male, excepting that the entire underparts are uniform very pale yellow, and the eyebrow is more distinct. Total length 4·35 inches, culmen 0·8, wing 2·0, tail 1·35, tarsus 0·6.

Young Male. Similar in plumage to the adult female, the eyebrow not quite so distinct; a broad deep metallic violet band down the middle of the throat.

HAB. Andaman Islands.

THE Andaman Sun-bird is most nearly related to *C. flammazillaris*, from which it differs in having the bill longer and stronger, in the paler colour of the breast and axillary tufts, the latter being uniform gamboge-yellow with no shade of orange or red, in the sides of the metallic throat being green instead of blue, and in the less extent of the non-metallic breast-band.

It is confined to the Andamans, and is apparently very abundant in all the islands of that group. The figures in the Plate and my descriptions are taken from specimens collected by Lieut. Wardlaw-Ramsay, and kindly lent to me by the Marquess of Tweeddale, who possesses a fine series of this species. A study of these skins convinces me that Mr. Hume was right in separating the bird specifically from the other yellow-breasted Sun-birds.

Mr. Hume, while visiting the Andamans in company with Mr. Davison, crossed over to Barren Island, situated about one degree east of Middle Andaman. On this small island, a

mere volcanic cone in the middle of the sea, they came across several little parties of this bird, and on the neighbouring small wooded island of Narcondam likewise procured a pair; and as they collected a large series from the other islands, the notes given by Mr. Hume (Str. F. 1873, p. 404) deserve to be quoted at considerable length. "We obtained," he observes, "this species in every part of the Andaman group. We have specimens from every station about Port Blair, from the Jolly Boys, Macpherson's Strait, from Stewart Sound between N. and M. Andaman, from Little Button in the Archipelago, from Narcondam, from both the great and little Cocos, and from Preparis. We never once obtained it in any portion of the Nicobar group, every island of which we visited, and throughout which *A. pectoralis*, Horsf., abounds. The following are the dimensions, taken in the flesh:—

"*Male*. Length 4·5 to 5 inches, expanse 6·5 to 7·0, wing 2·1 to 2·15, tail from vent 1·4 to 1·75, tarsus 0·5 to 0·62, bill from gape 0·97, bill at front 0·75 to 0·8, wings when closed reach to within 0·62 of end of tail.

"*Female*. Length 4·4 to 4·7, expanse 6·25 to 6·5, wing 1·82 to 2·02, tail from vent 1·22 to 1·4, tarsus 0·55, bill from gape 0·97, bill at front 0·75 to 0·8, wings when closed reach to within 0·62 of end of tail."

He then gives a full description of the plumage, and observes that the bill, legs, and feet are black and the irides dark brown, and that the upper parts of the plumage are tinged or suffused with olive. "The amount of this tinging varies very much in various specimens: in some there is only a trace of this; in others it almost entirely hides the brown. In fact the difference is as great as between the summer and winter plumage in some of the *Phylloscopi*; in some specimens there is more green on the rump; in others the tinge is decidedly brightest on the head and interscapular regions. Some birds almost entirely want this tinge; and these have absolutely no trace of a supercilium; others, again, in which the green tinge is more marked (killed, as a rule, towards the middle or latter half of April, and which are about to doff the breeding-garb), show a pale yellowish white supercilium, more or less distinctly. It is the birds killed from December to March (during which period they breed) that are brownest above, and are characterized by the absence of the supercilium.

"Towards the middle of April the males doff the breeding-plumage; the upper surface becomes somewhat greener, and the rump slightly brighter-coloured; the superciliary stripe, though still very small, becomes more distinct and pale yellow; the chin, throat, and breast become a clear pale yellow, with only a moderately broad central stripe of steely-blue feathers; the brown pectoral band disappears. The female closely resembles the male, is browner when he is browner, greener when he is greener, and shows more or less supercilium at the same time as he does—but always, I think, shows rather more; she differs in having the chin, throat, and upper breast always pale yellow or yellowish white, and in never exhibiting any trace of the brown pectoral band. The descriptions are founded on sixteen specimens of males and ten of females, killed in different parts of the Andaman group, between December and the end of April. The species is very common in the Andamans; and had we not had so many other birds to attend to, we might have secured any number of specimens."

Messrs. Hume and Davison further inform me by letter:—"Of the nidification of the Andaman Honey-Sucker, Captain Wimberly writes, 'I send the nest and two eggs of *A. anda-*

manica, taken by me on the 3rd March at Aberdeen, together with the female bird. The nest was suspended from a creeper growing on a Gurjun or Wood-oil tree. It was built about five feet from the ground.'

"The nest is a typical 'Honey-sucker' structure, suspended from a very slender leafy twig, about 4 inches from its extreme point, these remaining 4 inches being allowed to hang down alongside the nest. The body of the nest is egg-shaped, the longer diameter being vertical and the end nearest the point of suspension being drawn out into a point. At the lower extremity there is, as usual, a fringe of pendent ornaments, thin strips of bark of two kinds, brown and silvery. The body of the nest is about 5 inches by 3, external diameter; the point is drawn up about an inch longer; and the fringe hangs down about two inches below the bottom of the true nest. About two inches below the point of suspension is a little portico, which projects about an inch and immediately overhangs the oval aperture, which is an inch or rather more wide, and nearly two inches high. The greatest interior diameter is two inches; and it is only 1.5 inch deep below the lower margin of the entrance. The nest is somewhat loosely woven with fine grass and vegetable fibre; and a few dead leaves, and numerous pieces of red fern-roots, white silver paper-like bark, and other similar vegetable odds and ends are incorporated in the outer surface. As usual, the margin of the lower half of the entrance is more firmly woven; and the whole interior below the aperture is densely felted with soft satiny vegetable down, mingled white and brown.

"The egg (for one was destroyed in transit) is a moderately elongated oval, a good deal pointed towards one end. The shell is fine, but glossless. The ground-colour appears to be slightly pinkish white, everywhere clouded and mottled with a faint wash of pinkish or purplish brown. Besides this a few dark brown, in some cases almost black, specks, mostly very minute, are scattered here and there about the surface of the egg. Only one of the specks exceeds in size a full stop, as here printed. The clouding already alluded to seems to have a faint tendency to form a zone about the large end. Some of the dark spots are surrounded by a nimbus, as if the colour had run. The egg measures 0.67 by 0.48."



CINNYRIS FLAMMAXILLARIS.

(BURMESE YELLOW-BREASTED SUN-BIRD.)

Nectarinia jugularis, Blyth, J. A. S. B. xii. p. 979 (1843).

Nectarinia flammixillaris, Blyth, J. A. S. B. xiv. p. 557 (1845), xv. p. 370 (1846); id. Cat. B. Mus. A. S. B. p. 226. no. 1367 (1849); Gould, P. Z. S. 1859, p. 151; Blyth, Ibis, 1865, p. 30; Swinhoe, Ibis, 1866, p. 129; Beavan, Ibis, 1869, p. 420.

Cinnyris flammixillaris, Bp. Consp. Av. i. p. 408. no. 45 (1850).

Cyrtostomus flammixillaris, Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 739. no. 1080 (1856); Moore, P. Z. S. 1859, p. 462.

Arachnechthra flammixillaris, Walden, P. Z. S. 1866, p. 541; id. Ibis, 1870, p. 24; Swinhoe, Ibis, 1870, p. 239; Walden, Ibis, 1871, p. 167; Hume, Nests & Eggs Ind. B. p. 154 (1873); id. Str. F. 1874, p. 473; Walden, Ibis, 1876, p. 348.

Arachnothera flammixillaris, Gray, Hand-l. B. i. p. 112. no. 1383 (1869).

♂ *ad.* supra olivaceus: alis saturatè brunneis olivaceo lavatis: rectricibus nigris, externis quatuor albo terminatis, extimis latius: gutturo saturatè metallicè violaceo, lateraliter et infrà chalybeo nitente, pectore sulfureo: torque duplici pectorali sordidè coccineo et nigro: fasciis pectoralibus flavis aurantiaco-rubro lavatis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* mari similis, sed nusquam metallica: supercilio indistincto flavo.

HAB. in regione Burmanensi meridionali et indè ad insulam Malaccensem "Penang" dictam.

Adult Male. Upper parts olive; wings dark brown, the feathers edged with olive; tail black, the four outer feathers on each side with white ends, broadest on the outer ones; on the forehead occasionally a few metallic violet feathers; feathers in front of the eye black; cheeks steel-blue; chin and throat deep metallic violet, shading into steel-blue on the sides and base of the plastron; breast rich sulphur-yellow; a well-defined maroon and black pectoral band; pectoral tufts deep yellow, shaded with orange; under surface of the wings brown, with the inner margins of the quills and the coverts white, the latter shaded with yellow; bill and legs black; irides dark brown. Total length 4·2 inches, culmen 0·7, wing 2·15, tail 1·45, tarsus 0·55.

Adult Female. Similar in plumage to the adult male, but with no metallic portions to the plumage; entire underparts, as well as the cheeks and a partial eyebrow, rich sulphur-yellow. Total length 3·5 inches, culmen 0·65, wing 1·9, tail 1·2, tarsus 0·55.

HAB. Arracan and Southern Burmah; from the towns of Akyab and Arracan into Siam, and thence through Tenasserim and the western Malay provinces to the island of Penang.

THE present species may be distinguished from *C. andamanicus* by the characters I gave while treating of that bird, and from the Hainan form *C. rhizophoræ* by the forehead not being metallic blue, although occasionally a few of the feathers on this part are tipped with that colour. The breast, however, is always slightly darker than in either of these two other species.

From Burmah it has been recorded by Mr. Blyth; and that gentleman, as well as Dr. Cantor, mention it from Arracan, which appears to be its most northern and western limit. It has been collected by Lieutenant Wardlaw Ramsay at Rangoon, Pegu, and in the Tonghoo hills. The Marquis of Tweeddale (Ibis, 1870, p. 24) records it from Kyodan and the Salween river, on the authority of Captain Beavan, who also found it at Moulmein singly or in pairs feeding among the flowers. In Siam Sir R. Schomburgk procured it; and I have seen a male specimen in the Marquis of Tweeddale's cabinet from the same locality, which, according to the label, was taken with the nest and two eggs. From Tenasserim came Mr. Blyth's original types; and here, according to Mr. Hume (Str. F. 1874, p. 473), it is generally distributed, but is not numerous; and from Tavoy it has been recorded by Mr. Gould on the authority of Mr. Briggs.

Messrs. Hume and Davison have sent me the following note:—"The exact limits of this species have yet to be defined; all we can say certainly about it is that it occurs in Arracan, southward of Akyab, that it occurs in the southern half of Pegu, and in Tenasserim southwards from Moulmein, and thence again along the west coast of the peninsula at Tonka and Penang. Further south than this we have not observed it.

"At Mergui and along the coast of Malacca it is extremely abundant, at any rate in December and January; and it was then in full breeding-plumage.

"Like *C. asiaticus* the males put off the breeding-plumage, and assume a dress precisely similar to that of the female, except in so far that they retain a gular stripe. Specimens killed at the close of April had nearly completed the change.

"Males measured—length 4·4 to 4·5 inches, expanse 6·3 to 6·8, tail from vent 1·45 to 1·55, wing 1·95 to 2·12, tarsus 0·5 to 0·55, bill from gape 0·7 to 0·8, weight a little over 0·25 oz.

"Female—length 4·27 to 4·37 inches, expanse 6·25 to 6·5, tail from vent 1·3 to 1·45, wing 2 to 2·05, tarsus 0·45 to 0·5, bill from gape 0·7 to 0·75.

"Legs, feet, bill, and claws black; irides dark brown."

Two specimens from Penang, one in Mr. Swinhoe's cabinet, collected by Père Martin, and another in the Marquis of Tweeddale's, have a few of the frontal feathers tipped with steel-blue, while another specimen, nominally from the same locality, does not possess these metallic colours on the forehead. I am inclined to doubt the slight metallic shades on the forehead being a constant mark of the Penang bird, which, I should observe, differs in no other respect either in colour or measurements from the specimens which I have examined from Moulmein, Siam, Tonghoo, or Rangoon; and this character is not of specific value. A very similar instance of variation is to be met with in some specimens of *C. jugularis*.

According to Mr. Hume (Nests and Eggs of Ind. B. p. 154):—"Mr. T. Theobald states that he obtained a nest of this species at Tavoy on the 1st February. The nest resembled that of *A. asiatica*, and was a neat purse, suspended in a lime-tree (*Citrus*). It contained two oval pyriform eggs, pale greenish, speckled with greyish ash, which measured 0·56 by 0·43 inch. I suspect some error in measurement here; the dimensions are apparently too small for the bird."

My figures and descriptions are taken from a pair of Moulmein birds collected by Captain Beavan, now in the Marquis of Tweeddale's cabinet.



CINNYRIS RHIZOPHORÆ

(HAINAN YELLOW-BREASTED SUN-BIRD.)

Arachnechthra rhizophoræ, Swinhoe, Ann. & Mag. Nat. Hist. 4th ser. iv. p. 436 (1869);
Walden, Ibis, 1870, p. 25; Swinhoe, tom. cit. p. 237; id. P. Z. S. 1871, p. 349.

♂ *ad.* similis *C. flammaxillari*, sed fronte chalybeâ distinguendus: pectore pallidissimè flavo: torque pectorali duplici rubro et nigro.

♀ *ad.* similis mari adulto, sed colore metallico, fasciis pectoralibus et torque pectorali absentibus.

♂ *jun.* similis feminæ adultæ, sed gutture metallico.

Hab. in insulâ "Hainan" dictâ.

Adult Male. Upper parts brown, shaded with olive, most strongly so on the lower back; forehead violet, shaded with steel-blue; wings dark brown, with the edges of the feathers paler, and shaded with olive on the secondaries; tail brownish black, with the three outer feathers on each side tipped with white, increasing in extent towards the outer ones, of which nearly the terminal half is white; underparts yellow, shaded cream-colour; chin and throat deep violet-bronze, entirely surrounded by an edging of steel-blue, shot with green; pectoral tufts deep yellow, tinted with orange, and between them a pectoral band of maroon-red, at the base of the metallic plastron, followed by a broader one of black; under wing-coverts and the inner margins of the quills white, the former shaded with yellow; bill black; irides dark brown; legs deep leaden-grey. Total length 4 inches, culmen 0·65, wing 2·1, tail 1·4, tarsus 0·55.

Adult Female. Similar in plumage to the adult male, but without any metallic plumes; it has an obscure pale yellow eyebrow; forehead similar in colour to the back; chin, throat, and pectoral tufts uniform pale yellow; flanks, thighs, and under tail-coverts almost white.

Young Male. Similar in plumage to the adult female, but with the metallic colours beginning to appear down the centre of the throat.

HAB. Hainan.

THE Yellow-breasted Sun-bird of Hainan is distinguished by its metallic violet forehead, its broad non-metallic pectoral band, and pale yellow breast.

It is confined to the island of Hainan and West Island, where Mr. Swinhoe found it to be common both among the mountains and in the marshes along the coast. In his article in 'The Ibis' (1870, p. 238), after giving a good description of the plumage, and pointing out its special characters, he observes:—"About the capital city in the north-west I did not meet with this lively little bird; nor on my journey into the interior did I see it, until I got to Shuy-wei-sze, where it was quite a common species among the trees round villages. Its call-note somewhat recalled to mind the 'toweit' of *Reguloides superciliosus*, but is louder and sharper. As it hovers

and frolics over a bush, it utters a rapid succession of these notes; but its voice often runs off into quite a cheerful little song. In the midst of its activity, it often stops suddenly and begins to preen itself, twittering gaily all the while. On the banks of the Chinlan river (N.E. Hainan), on the 7th of March, we found it in abundance among the mangrove-marshes, flitting from bush to bush and alighting on the topmost twigs. The edge of the jungle at Lingshuy and Yu-lin-kan (S. Hainan) yielded plenty of these birds, and we found them also plentiful on West Island, picking the insects off the large red flowers of the tall leafless *Bombax malabaricum*. At Tuntow, on the borders of the Kangên and Changhwa districts, at Haosuy, and at Hungpe (all in W. Hainan) we noticed them again in tolerable numbers; and from all the places noted we got specimens. I have thus a good series: and not one shows an extension of the frontal metallic black; and as the last specimen was shot on the 30th of March, there is no reason to suppose that the summer dress would appear otherwise, all the birds having the lateral yellow breast-tufts well developed."

Mr. Swinhoe has most kindly placed his fine series of this bird at my service; and from his specimens my figures and descriptions are taken. All these birds were collected by him in February, at which season the adults have evidently assumed their full plumage. Two other specimens, one collected in February and the other in March, are in the plumage of the fully adult male, excepting as regards the forehead, where only a few of the plumes are metallic. Those are, I consider, birds bred in the earlier part of the previous season; and the young bird here described was probably from a late brood.



CINNYRIS PECTORALIS

CINNYRIS PECTORALIS.

(MALAYAN YELLOW-BREASTED SUN-BIRD.)

Nectarinia pectoralis, Horsf. Tr. Linn. Soc. xiii. p. 167 (1820); Vigors, Mem. Raffles, p. 673 (1831); Jard. Monogr. Sun-birds, pp. 226, 266, pl. 25. fig. 1; Blyth, J. A. S. B. xv. p. 370 (1846); Gray, Gen. B. i. p. 98 (1847); Blyth, Cat. B. Mus. A. S. B. p. 225. no. 1366 (1849); Motley & Dillwyn, Nat. Hist. Labuan, p. 15 (1855); Hartl. J. f. O. 1855, p. 319; Sclat. P. Z. S. 1863, p. 220; Wallace, tom. cit. p. 486; Pelzeln, Reise Novara, Vög. pp. 52, 161 (1865); Tytler & Beavan, Ibis, 1867, p. 322; Ball, Str. F. 1874, p. 334.

Pectoral Creeper, Lath. Gen. Hist. B. iv. p. 266. no. 75 (1822).

Nectarinia eximia, Temm. Pl. Col. 138. figs. 1, 2 (1823); S. Müll. & Schl. Verh. Nat. Gesch. Ned. Overz. Bez. Zool. Av. p. 61. no. 10 (1846).

Cinnyris ornatus, Less. Dict. Sc. Nat. i. p. 15 (1827, ex Temm. Pl. Col. 138. figs. 1, 2); id. Man. d'Orn. ii. p. 36 (1828).

Cinnyris luteoventer, Less. Trait. d'Orn. p. 298. no. 29 (1831); Pucheran, Rev. et Mag. Zool. 1853, p. 488.

Cinnyris pectoralis, Bp. Consp. Av. i. p. 408. no. 43 (1850); Bernstein, J. f. O. 1859, p. 279; Sharpe, P. Z. S. 1875, p. 106.

Cyrtostomus pectoralis, Cab. Mus. Hein. i. p. 105 (1850); Reichb. Handb. Scansoriae, p. 307. no. 722, pl. 570. figs. 3891-92 (1854); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 739. no. 1079 (1856); Hume, Nests and Eggs Ind. B. p. 155 (1873); Salvad. Ann. Mus. Civic. Genova, v. p. 170 (1874).

Arachnothera pectoralis, Gray, Hand-l. B. i. p. 112. no. 1385 (1869).

Arachnechthra pectoralis, Walden, Ibis, 1870, p. 25; Ball, Str. F. 1873, p. 64; Hume, Str. F. 1874, p. 196.

♂ *ad.* suprâ olivascenti-flavus: fronte latâ chalybeâ: alis caudâque ut in *C. flammazillari* coloratis: subtus lætè flavus: gutture metallicè violaceo, lateraliter angustè chalybeo: fasciis pectoralibus lætè flavis: rostro pedibusque nigris: iride saturatè brunneâ.

♀ *ad.* mari similis, sed gutture et jugulo metallicis absentibus: supercilio pallidè flavo.

Hab. in insulis Nicobaricis, in peninsulâ Malaccensi et in insulis "Sumatra," "Sunda," "Java," "Madura," "Lombok," "Flores," "Bornco," "Labuan" dictis.

Adult Male. Upper parts olive-yellow; forehead, front half of the crown, a partial eyebrow, and the cheeks violet shaded steel-blue; a black patch in front of the eye; wings dark brown, the feathers edged with olive-yellow; tail black, the four outer feathers on each side with white ends, broadest on the outer feathers; beneath rich yellow; chin and throat deep metallic violet narrowly edged on the sides with steel-blue, and margined at the base with a few maroon feathers; pectoral tufts very deep bright yellow; under surface of the wings brown, with the inner margins of the quills and the coverts white, the latter

tinted with yellow; bill and legs black; irides dark brown. Total length 4·15 inches, culmen 0·7, wing 2·2, tail 1·5, tarsus 0·6.

Adult Female. Similar in plumage to the adult male, excepting that it has no metallic plumes; forehead and crown the same colour as the back; eyebrow pale yellow; feathers in front of eye black; throat yellow, like the breast, but paler towards the chin. Total length 3·75 inches, culmen 0·65, wing 2·1, tail 1·35, tarsus 0·55.

Male in postnuptial plumage. Similar to the female, but with a broad metallic violet band down the centre of the throat.

HAB. Nicobar Islands, southern extremity of Malay peninsula, and the islands of Sumatra, Sunda, Java, Madura, Lombeck, Flores, Borneo, and Labuan.

THIS Sun-bird, like *C. rhizophoræ*, possesses a metallic violet forehead, but is distinguished from that bird by the almost entire absence of the non-metallic pectoral band, and by the deeper-yellow breast. From *C. frenatus* and *C. jugularis* it may be readily separated by its metallic crown and the deep-yellow pectoral tufts, and from *C. flammoxillaris* by the almost entire absence of the non-metallic breast-band, as well as by its well-marked metallic forehead.

Captain Beavan (Ibis, 1867, p. 322) mentions this species as found in the Andaman Islands, on the authority of a specimen procured by Colonel Tytler in his garden at Port Blair; this specimen should doubtless be referred to *C. andamanicus*.

From the Nicobars it has been frequently recorded; and Mr. Hume observes (Str. F. 1874, p. 196) that, with a series of over forty specimens before him from these islands, he could find no constant difference in the size of the two sexes, but that individuals differed very considerably in their dimensions. "Length 4·0 to 4·75, expanse 6·0 to 6·75, wing 2·0 to 2·2, tail from vent 1·4 to 1·6, tarsus 0·5 to 0·6, bill from gape 0·75 to 0·9, bill at front 0·65 to 0·83, weight from 0·25 to 0·37 ounce.

"The legs, feet, and bill are black; the irides brown.

"In non-breeding plumage the males appear to be similar to the females, except that some of the feathers of the forehead are very narrowly and faintly margined with steel-blue. We procured no male of this species with a central gular stripe, such as the males of *A. asiatica*, *A. andamanica*, &c. exhibit in non-breeding plumage.

"In some specimens, both male and female, in worn plumage a great deal of the olive-green has disappeared off the back, leaving the dull brown basal portion of the feathers the predominant tint.

"Some few of the males in full breeding-plumage exhibit on the sides of the breast, just at the junction of the steel-blue and yellow, two or three maroon-tipped feathers.

"Davison remarks:—'This little honey-sucker is very abundant on the Nicobar Islands; and numbers may always be seen in the tops of the cocoa-nut palms hopping about among the flowers. I have frequently seen the male perch himself on an exposed branch, slightly open his wings, elevate his axillary tufts, and pour forth a feeble, twittering, but pleasing little song.' Of the nidification of this species in the Nicobars, the following brief note by Mr. Davison sums up all we yet know:—'Although I found several nests of this species, I never obtained the eggs;

on the 19th of January I found a nest at Camorta; I shot both the birds, but on climbing up to the nest found it empty. Again, on the 17th of February I found three nests, two empty. one with two young birds.’”

Mr. Blyth (J. A. S. B. xix. p. 557) states that it is common at Malacca, whence I have examined a fine adult male collected by Mr. Wardlaw-Ramsay.

Messrs. Hume and Davison kindly write to me, with regard to the Malay peninsula, “We have only met with this species at Singapore, where it was very abundant.

“*Male*. Length 4·55 to 4·62 inches, expanse 6·75 to 7·12, tail from vent 1·5 to 1·62, wing 2·12 to 2·25, tarsus 0·52 to 0·6, bill from gape 0·75 to 0·8, weight 0·3 to 0·35.

“*Female*. Length 4·25 to 4·6 inches, expanse 6·35 to 6·75, tail 1·25 to 1·5, wing 2·0 to 2·12, tarsus 0·5 to 0·55, bill from gape 0·7 to 0·8.

“Bill, legs, and feet black; irides dark brown.

“This species assumes a non-breeding dress similar to that of *A. asiatica*. Specimens killed in August, and several of those killed in September, are in this dress, or passing out of it; but almost all the specimens killed at the end of October were in full or nearly full breeding-dress.”

Müller remarks that it is plentiful in Sumatra and Java, inland as well as on the coast, in forest districts, but is not found in the mountains.

It was from Java that Horsfield's type came; and here, according to Bernstein (J. f. O. 1859, p. 279), this lively little bird is everywhere met with, being very plentiful in the gardens and village-woods, where it attracts attention by its bold habits and clear loud voice. It flies rapidly about amongst the tangled branches of the trees and bushes, or clings, with back downwards, to the leaves and blossoms, after the manner of Tomtits, searching for small insects. Sometimes it runs along a horizontal branch with tail erect like a Wren; and at other times it climbs a vertical stem like a Tree-Creeper. It feeds on the small insects which it finds in the flowers or amongst the leaves and moss of the trees. Its very artistically constructed nest is suspended from the end of a twig, and is pear-shaped, with an oval entrance at the side, which is covered by a portico to protect it from the rain. The nest is composed of leaves, creepers, bark-fibres, and chips of bark and flowers, woven together with wool and the silk of caterpillars, and sometimes appears, from its careless, loose structure, so like an accidental mixing of leaves, bark, &c. round a cobweb, that it may pass unnoticed. Inside it is lined with wool mingled with a few feathers and horsehairs, and in a few cases with bark-fibres. It lays two eggs, of a dirty white colour shaded with green, and clouded and spotted with olive-brown, and with pale-edged dark-brown streaks. In the Sunda island, between Sumatra and Java, it is known, according to him, by the name of *Tjuët*; and it has also been recorded from these islands by Lesson. It is, according to Mr. Horsfield, the “*Fri-ganti*” of the Javese.

Mr. Hume (Nests and Eggs of Indian Birds, p. 155) gives the following description of the nest:—“Very similar to, but larger and more coarsely made than that of *A. asiatica*. The nest is a pendent, elongated egg, a good deal drawn out towards the twig it hangs from, nine inches in length and three in diameter, composed chiefly of dry grass and cocoa-nut fibre, with a few feathers intermingled in the body of the nest, and the interior thickly lined with these. About an inch below the point of suspension the portico projects for 1·25 inch; it is about 1·5 thick; and below this is the little oval entrance to the nest, about 1·25 by 1·0 inch. Interiorly the

cavity is about 3·5 deep, and below the lower margin of the entrance-hole nearly 1·75 in diameter. The portico and the upper portion of the neck of the nest is chiefly coir, while the lower and broader portions are mostly grass and pieces of bamboo-sheaths, a dead leaf or so, and a scrap or two of bark. There is no attempt to decorate the nest externally, as is so common in this genus; but perhaps the nest was not quite finished, though Davison says they were all alike."

These nests were no doubt, as Mr. Hume suggests, not quite finished; for I am informed, in that gentleman's and Mr. Davison's recent notes to me, that "subsequently Mr. De Roepstooff took a beautiful nest of this species near Camorta, in the Nicobars, containing two hard-set eggs, in January.

"The nest was suspended a few feet from the ground, from near the end of a slender twig of a thorny plant.

"It was of the usual *Arachnechthra* type, a pendent pear, about 6 inches in length and 3·25 in its greatest breadth, suspended by the small end, composed of the finest flower-stems of grass with a quantity of broad blade leaves of grass incorporated in the outer portion of the structure, some of these, as usual, being allowed to hang down below the bottom of the nest, giving the characteristic ragged or, possibly the bird considers it, ornamental appearance to the nest.

"About 2·5 inches below the point of suspension a circular aperture, 1 inch in diameter, has been pierced; and above this the nest has been pulled out into an ample portico completely overshadowing the whole entrance, and projecting a good deal beyond it.

"The ground-colour of the egg is a dull pale brownish grey; and it is finely streaked and freckled everywhere with a darker shade of brown: besides this a very few specks and minute spots of a very dark brown are observable here and there on the surface of the egg, each more or less enveloped in a brownish haze. On one side of the egg the markings seem to have a tendency to form a zone round the large end. The eggs measured 0·61 by 0·45."

It has been recorded by Mr. Wallace (P. Z. S. 1863, p. 486) from Lombok and Flores; and some of that gentleman's specimens I have examined. They are large, but come within the measurements given by Mr. Hume of Nicobar specimens.

An example in the Marquis of Tweeddale's collection obtained by Dr. Meyer in Madura, a small island to the north-east of Java, has the smaller dimensions of the Javan bird, and thus differs from the Flores specimens in Mr. Swinhoe's cabinet, from which I have taken my figures and descriptions, in having the wing 0·2 inch shorter; but it is evident from the measurements given by Mr. Hume of Nicobar and Singapore specimens that these variations are of slight importance.

In Borneo it appears to be rather a scarce bird; of its occurrence at Banjermassing, we are informed by Mr. Sclater (P. Z. S. 1863, p. 220) that it was sent home in a large collection made in South-east Borneo by Mr. Motley; and it is referred to in the following note:—"Found also in Labuan; here it frequents chiefly the flowers of the Laban (*Vitex tomentosa*). At Sarawak, according to Count Salvadori, the Marquis Doria and Dr. Beccari found it in January and February, and not very common then; and he informs us that a nest they discovered there, apparently belonging to this species, was very like the nest of *C. insignis* figured by S. Müller (Verhand. pl. 9), which differs very considerably from the descriptions of the nest of this species

given by Bernstein and Hume; and from the colouring of the egg he describes, I should doubt its really belonging to this species.

Messrs. Motley and Dillwyn, in their charming work (*Contr. Nat. Hist. Labuan*, p. 15), of which unfortunately only one part ever appeared, remark concerning this bird:—"Our specimens were shot on a Mimosa-like tree, overhanging the sea-beach, where they were very busy among the branches, in company with a great variety of small birds; they appeared to be hunting some insects, and in their manner and attitudes much resembled our English Tits." In a letter Mr. Motley says:—"I think that there is no doubt that this lively little bird feeds almost entirely on honey; three or four of them frequent all day long a beautiful plant of *Russelia juncea* just before my office window, clinging to the slender twigs in all sorts of positions, and turning up the scarlet bells to insert their fairy little beaks; they appear very sociable little birds, never passing one another without putting their beaks together with a little chirp. If any one comes too near, off they go like meteors, but are back in a minute. I think I never saw any thing more beautiful than this plant; its long pendent twigs are one blaze of scarlet blossoms for months together, with half a dozen of these living gems flitting around them. I often sit and watch them, and wish I could place them before your window—birds, flowers, broad sunshine, and all."

From Lord Tweeddale's magnificent series of this species I have examined specimens from all the localities here mentioned, and can detect no appreciable difference in specimens from any of these places, the extent of the metallic forehead and the almost entire absence of non-metallic pectoral band being extremely constant characters.

The Javan bird, Horsfield's type of his *Nectarinia pectoralis*, afterwards received the name of *Nectarinia eximia* from Temminck, from whose plate Lesson described his *Cinnyris ornatus*, while to the bird from the Sunda island Lesson gave his title of *Cinnyris luteoventer*.



CINNYRIS SOLARIS.

(ORANGE-BREASTED SUN-BIRD.)

Nectarinia solaris, Temm. Pl. Col. pl. 347, fig. 3 (1825); Jard. Monogr. Sun-birds, pp. 215, 266 (1842); S. Müll. & Schl. Verh. Nat. Gesch. Aves, p. 60, pl. 8, fig. 5 (1846); Gray, Gen. B. i, p. 98 (1847); Schl. Handl. Dierk. p. 256 (1857); Wallace, P. Z. S. 1863, p. 486; Finsch, Neu-Guinea, p. 163 (1865).

Cinnyris solaris, Less. Man. d'Orn. ii, p. 31 (1828); id. Traité d'Orn. i, p. 297, no. 25 (1831); Blyth, Cat. B. Mus. A. S. B. pp. 225, 228, no. 1365 (1849); Bp. Consp. Av. i, p. 408, no. 42 (1850); Wallace, Ibis, 1861, p. 350.

Anthreptes solaris, Licht. Nomencl. Av. p. 56 (1854).

Cyrtostomus solaris, Reichb. Handb. Scansoriæ, p. 308, no. 725, pl. 589, figs. 3995-96 (1854); Bp. Comptes Rendus, 1854, p. 265.

Arachnothera solaris, Gray, Hand-l. B. i, p. 112, no. 1386 (1869).

Arachnechthra solaris, Walden, Ibis, 1870, p. 32.

♂ *ad.* suprâ sordidè olivaceo-flavus, uropygio et supracaudalibus lætiùs flavis: rectricibus alarum minimis dorso concoloribus, reliquis brunneis dorsi colore limbatis: remigibus brunneis angustè lætiore flavo marginalis: rectricibus nigris, sub certâ luce indistinctè translineatis, exterioribus versùs apicem pallidioribus et angustè albo terminatis: vertice, loris, genis et gutturi lateribus metallicè viridibus chalybeo nitentibus: gutture medio olivascenti-bronzino, fasciâ transversali jugulari metallicè violacèa: corpore reliquo subtùs miniato, crisso et subcaudalibus magis aurantiacis: corporis lateribus olivascenti-flavis, fasciis pectoralibus lætè flavis: subalaribus albis vix flavo lavatis: remigibus subtùs brunneis, angustè albo intùs marginatis: rostro nigro: pedibus et iride saturatè brunneis.

♀ *ad.* a mare diversa: suprâ olivascenti-flava: remigibus et rectricibus ut in mare coloratis, his latè albo terminatis: facie laterali olivascente, supercilio parvo flavo: genis et regione parotica inferiore flavis: subtùs flava, gulâ vix pallidiore.

Hab. in insulis "Timor" et "Flores" dictis.

Adult Male. Upper parts olive-yellow; forehead and crown deep metallic green, often shaded with violet-bronze; wings dark brown, the feathers broadly edged with olive-yellow; tail black, tipped with white, broadest on the outer feathers; in front of the eyes black; cheeks, lower portion of the ear-coverts, and an eyebrow metallic green; remainder of the sides of the head and neck olive-yellow; chin and throat deep metallic green, with a more or less well-defined broad violet-bronze band down the centre; breast orange-red, darkest on the chest, and fading into orange-yellow on the abdomen and under tail-coverts; flanks and thighs shaded with olive; pectoral tufts bright sulphur-yellow; under surface of the wings brown, with the inner margins of the quills and the coverts white, the latter partially shaded with sulphur-yellow; bill black; irides and legs dark brown. Total length 4·2 inches, culmen 0·75, wing 2·1, tail 1·5, tarsus 0·6.

Adult Female. Upper parts olive-yellow; wings and tail as in the adult male; sides of the head olive-

yellow, with an eyebrow, cheeks, and lower portion of the ear-coverts pale-yellow; entire underparts yellow; under surface of the wings brown, with the inner margins of the quills and the coverts white, the latter partially shaded with yellow. Length 4 inches, culmen 0·75, wing 1·95, tail 1·4, tarsus 0·55.

HAB. Flores and Timor.

THE Orange-breasted Sun-bird belongs to the "Cyrtostomus" group. The male is readily distinguished by the orange-red colour of the breast; the female, however, possesses a yellow breast, and is not so easily recognized from the other closely allied species; the bill is, perhaps, the best-marked character, being longer than in *C. pectoralis*, the only closely allied form found within the limits of its range.

Temminck, who first described this species, gave the locality Amboyna for his type specimen; but this was evidently an error, as S. Müller has already pointed out. Mr. G. R. Gray, again (P. Z. S. 1860, p. 348), refers to Amboyna as a habitat, but was evidently copying Temminck.

It has been recorded by S. Müller from Timor, Poeloe, and Samao. From Timor and Flores I have examined several specimens collected by Mr. Wallace; and in the former of these islands it is the only species of Sun-bird at present known, while in the latter are also to be found *C. pectoralis* and *Anthreptes malaccensis*.

It is a rather rare bird in collections; and nothing has, as yet, been recorded respecting its habits.

The specimens here figured and described are an adult male and female collected by Mr. Wallace in the island of Flores, and now in my own possession.



CHRYSELENPIA

CINNYRIS ZENOBIA.

(BLACK-BREASTED OLIVE-BACKED SUN-BIRD.)

?*Tufted Creeper*, Lath. Syn. Suppl. p. 132, no. 57 (1787); id. Gen. Hist. B. iv, p. 251, no. 46 (1822).

?*Certhia cirrhata*, Lath. Ind. Orn. i, p. 299, no. 62 (1790); Shaw, Gen. Zool. viii, p. 271 (1811); Bechst. Kurze Uebers. p. 189, no. 63 (1812).

?*Soui-manga à touffes jaunes*, Aud. et Vieill. Ois. Dor. ii, p. 65 (1802).

?*Cinnyris cirrhatus*, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 495 (1819); Bonn. et Vieill. Enc. Méth. ii, p. 599 (1823); Less. Man. d'Orn. ii, p. 29 (1828).

Cinnyris zenobia, Less. Voy. Coq. Zool. i, p. 670, no. 104, pl. 30, fig. 3 (1826); Bp. Consp. Av. i, p. 409, no. 50 (1850); Rosenb. J. f. O. 1864, p. 193, part.

Cinnyris clementia, Less. Dict. Sc. Nat. i, p. 18 (1827); id. Man. d'Orn. ii, p. 40 (1828).

?*Nectarinia cirrhata*, Drapiez, Dict. Class. xv, p. 509 (1829).

Nectarinia clementia, Drapiez, tom. cit. p. 510.

Nectarinia zenobia, Jard. Monogr. Sun-birds, p. 272 (1842); S. Müll. & Schl. Verhand. Zool. Aves, p. 60 (1846); Gray, Gen. B. i, p. 98 (1847); id. P. Z. S. 1858, p. 173, 1860, p. 348, part., 1861, p. 433, part.; Wallace, P. Z. S. 1863, p. 32; Finsch, Neu-Guinea, p. 163 (1865, part.).

Chalcostetha zenobia, Reichb. Handb. Scansoriæ, p. 286, no. 663, pl. 572, fig. 3900 (1854).

?*Nectarinia solaris*, Gray, P. Z. S. 1860, p. 348.

Arachnothera zenobia, Gray, Hand-l. B. i, p. 110, no. 1361 (1869).

Arachnechthra zenobia, Walden, Ibis, 1870, p. 30.

Cyrtostomus zenobia, Salvad. Ann. Mus. Civic. Genova, viii, p. 379 (1876); id. Atti R. Acc. Torino, xii, p. 319 (1877).

♂ *ad.* suprâ olivascenti-flavus: tectricibus alarum brunneis, extûs olivascenti-flavo marginatis: rectricibus nigris, angustè metallicè viridi limbatis, exterioribus albido terminatis: gutture toto et præpectore metallicè violaceis, vittâ latâ mystacali viridescenti-chalybeâ ad latera juguli productâ: corpore reliquo subtûs velutino-nigro violaceo lavato: fasciis pectoralibus lætè flavis: subalaribus et remigibus infra brunneis, his intûs albido vel pallidiore brunneo marginatis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* mari dissimilis, haud metallica: suprâ olivascenti-flava: alis saturatè brunneis, plumis dorsi colore limbatis: rectricibus nigris, exterioribus albo terminatis: vittâ superciliari flavidâ: plumis antecocularibus et regione paroticâ saturatè brunneis: corpore subtûs flavo, gulâ pallidiore.

Hab. in insulis Moluccanis.

Adult Male. Upper parts olive-yellow; wings dark brown, the least and median series of coverts olive-yellow like the back, and the remainder of the feathers edged with that colour; tail black, the feathers

narrowly edged with a deep metallic gloss, and with very narrow pale tips to the three outer ones on each side; underparts black, with a blue gloss; chin, throat, and front of the chest metallic violet, shading on the sides of the throat into deep metallic green; pectoral tufts bright golden-yellow; under surface of the wings dark brown, with the inner margins of the quills white; bill and legs black; irides dark brown. Total length 4·3 inches, culmen 0·75, wing 2·1, tail 1·5, tarsus 0·6.

Adult Female. Upper parts olive-yellow; a broad buff eyebrow; wings dark brown, with the least and median series of coverts olive-yellow like the back, and the remainder of the feathers edged with that colour; tail black, tipped with white, most broadly so towards the outer feathers; underparts yellow, fading almost into white on the chin; flanks slightly shaded with olive; under surface of the wings brown with the inner margins of the quills and the coverts white, the latter slightly shaded with yellow; bill and legs black; irides dark brown. Length 3·75 inches, culmen 0·7, wing 1·85, tail 1·2, tarsus 0·55.

HAB. Bouru, Amboyna, Ceram, and the Kei Islands.

THE present species belongs to the "*Cyrtostomus*" group. It may be at once recognized from all the other Sun-birds by the olive-yellow colouring of the upper parts, combined with a black breast and bright yellow pectoral tufts.

It has been collected by Mr. Wallace in Bouru, Amboyna, Ceram, and the Kei Islands. It is recorded from Dorey, in New Guinea, and from Gilolo upon the same authority by Mr. G. R. Gray (P. Z. S. 1859, p. 155, 1860, p. 348); but I much doubt these localities for *C. zenobia*, and suspect that the specimens were females, and should be referred to *C. frenatus*.

The Marquis of Tweeddale observes (Ibis, 1870, p. 30):—"A specimen in my possession, obtained from a large collection of birds from Queensland, and consisting of authenticated Queensland species, represents a form exactly similar to Ceram examples of *A. zenobia* (Less.), excepting that it is smaller in its principal dimensions, and that it possesses a steel-blue frontal patch. Thus this alleged Queensland bird bears to *A. zenobia* the same relation that *A. pectoralis* (Horsf.) does to *A. frenata* (S. Müll.). Can it be the one mentioned by Mr. Ramsay as *Nectarinia australis* (Ibis, 1865, p. 85, no. 32)?"

I have written to Mr. Ramsay upon this subject; and he replies:—"With the exception of *C. frenatus*, I know of no other Australian Sun-bird. *C. frenatus* is found as far south as Port Denison, from whence I have received specimens, and also the nest mentioned (Ibis, 1865, p. 85). It is found also in the Rockingham-Bay district, and on the Daintree and Johnstone rivers to the north of Cardwell. I have before me specimens from Cape York, Port Moresby, New Guinea, the Duke-of-York Island, and New Ireland, in none of which do I observe any material difference. I certainly would not admit either *C. aspasiae* or *C. zenobia* into the Australian fauna, unless from some undoubtedly good authority; for, as a rule, I find collections of birds from Queensland most untrustworthy."

The specimen of *C. zenobia*, nominally from Queensland, is in full adult plumage, and is said to have been collected by Mr. Thorpe. The forehead is slightly shaded with metallic violet, the tips of some of the feathers being of that colour, thus differing from typical examples of *C. zenobia* in exactly the same proportion as some Penang specimens of *C. flammixillaris* do from Moulmein birds of that species; and varieties of a similar character are not uncommon with *C. jugularis*.

In one of Count Salvadori's articles upon the Sun-birds of the Papuan region (Atti R. Acc. Torino, xii, p. 320), he writes:—"Due maschi, forse più adulti degli altri, uno di Buru ed un altro delle Isole Kei, hanno il pileo tinto di nerastro splendente."

He further remarks that he has examined twenty-seven specimens from Bouru collected by Bruijn and Beccari, thirteen from Amboyna, one from Ceram Lant, and six from the Kei Islands. He suggests that probably Wallace's *Cinnyris*, n. sp. (Ann. & Mag. Nat. Hist. ser. 2, xx, p. 473), collected in the Kei Islands, should be referred to this species, while the *Nectarinia zenobia*, Gray (P. Z. S. 1859, p. 155), from Dorey should be referred to *C. frenatus*, to which species sixty specimens collected by D'Albertis, Beccari, and Bruijn all belong. For a similar reason he believes that the locality Aru Islands, mentioned by Von Rosenberg (J. f. O. 1864, p. 123), is likewise incorrect, as all the specimens collected there by Beccari belong to *C. frenatus*. He further observes that *C. zenobia* and *C. frenatus* apparently are not found on the same islands. In my article upon *C. frenatus* I mention by error the locality Ceram for that species on the faith of the specimen which I have here figured and described as the adult female of this species, now in the Marquis of Tweeddale's magnificent collection. The adult male here figured and described was also collected in Ceram by Mr. Wallace, and is in my own cabinet.

Lesson's type came from Amboyna, where it was killed in the mountains of Soya; and in this island, according to S. Müller, it is not uncommon among the farm inclosures and sparsely covered hills.

The description of *Certhia cirrhata*, Lath. (Ind. Orn. i. p. 299), agrees well with this species. That description was taken from his "Tufted Creeper," which was described from one of Lady Impey's drawings, said to have the "head, neck, and back deep olive, the feathers edged with dusky, primary quills brown, belly and tail black, on each side of the breast a tuft of yellow feathers, legs black. Inhabits Bengal."

It would appear from the description that the throat of the "Tufted Creeper" was olive, which is not the case with any known Black-breasted Sun-bird; and I think it therefore probable that this part was either hidden in the figure or that it was overlooked in the description. The locality, Bengal, is certainly an error; for undoubtedly it should not be referred to *C. asiaticus*, as that bird always loses the black breast in its moult before it assumes the dull plumage on the back, and, besides, the yellow pectoral tufts always disappear in the moult, before the back becomes olive.

The name, however, appears to be of little real importance, as the description is inaccurate if intended for this species, and therefore should not, in my opinion, be used.

An immature male of this species in the Paris Museum, collected during the voyage of the 'Astrolabe,' is labelled *C. melanogaster*. It differs from the adult in the breast and abdomen being yellow mottled all over with black feathers.



CINNYRIS LOTENIUS.

(LOTEN'S SUN-BIRD.)

? *Avis Tsioci*, Seba, Thes. i. p. 100, pl. 63. fig. 3 (1734-65).

Avis zeylonicus omnicolor, Seba, tom. cit. p. 110, pl. 69 (1734-65).

Purple Indian Creeper, Edw. Gleanings, vi. p. 116, pl. 265, upper fig. (1760).

Certhia lotenia, Linn. S. N. i. p. 188. no. 25 (1766); P. L. S. Müll. S. N. ii. p. 260 (1773); Gm. S. N. i. p. 483 (1788); Lath. Ind. Orn. i. p. 286. no. 16 (1790); Bechst. Kurze Uebers. p. 180. no. 16 (1812).

Le Soui-manga pourpre, Buff. Hist. Nat. Ois. v. p. 501 (1778); Aud. et Vieill. Ois. Dor. ii. p. 29, pl. 11 (1802).

Le Soui-manga de toutes couleurs, Buff. Hist. Nat. Ois. v. p. 513 (1778); Aud. et Vieill. Ois. Dor. ii. p. 67 (1802).

Loten's Creeper (part.), Lath. Gen. Syn. ii. p. 715. no. 16 (1782); id. Gen. Hist. B. iv. p. 235. no. 24 (1822).

? *Sickle-billed Creeper*, Lath. Gen. Syn. ii. p. 716 (1782).

Certhia polita, Sparrm. Mus. Carls. ii. pl. 59 (1786); Lath. Ind. Orn. i. p. 287. no. 19 (1790); Bechst. Kurze Uebers. p. 181. no. 19 (1812).

Polished Creeper, Lath. Gen. Syn. Supp. ii. p. 159 (1787); id. Gen. Hist. B. iv. p. 245. no. 38 (1822).

? *Certhia falcata*, Gm. S. N. i. p. 470. no. 30 (1788); Lath. Ind. Orn. i. p. 282. no. 6 (1790); Bechst. Kurze Uebers. p. 178. no. 6 (1812).

Certhia omnicolor, Gm. S. N. i. p. 483. no. 53 (1788, ex Seba, pl. 69); Lath. Ind. Orn. i. p. 286. no. 17 (1790); Shaw, Gen. Zool. viii. p. 200 (1811); Bechst. Kurze Uebers. p. 181. no. 17 (1812).

Le Soui-manga cuivré, Aud. et Vieill. Ois. Dor. ii. p. 64 (1802).

? *Le Soui-manga de Macassar*, Aud. et Vieill. tom. cit. p. 66.

Le Soui-manga au bec en faucille, Aud. et Vieill. tom. cit. p. 67.

Certhia purpurata, Shaw, Gen. Zool. viii. p. 201, pl. 28 (1811, ex Edwards).

Cinnyris omnicolor, Cuvier, Règne Anim. i. p. 412 (1817); Less. Man. d'Orn. ii. p. 52 (1828).

Cinnyris purpuratus, Cuv. Règne Anim. i. p. 412 (1817); Vieill. N. Dict. d'Hist. Nat. xxxi. p. 509 (1819); Steph. Contin. of Shaw's Gen. Zool. xiv. p. 230 (1826); Less. Man. d'Orn. ii. p. 53 (1828).

Cinnyris lotenius, Cuv. Règne Anim. i. p. 412 (1817); Bp. Consp. Av. i. p. 408. no. 38 (1850).

? *Cinnyris falcatus*, Vieill. N. Dict. d'Hist. Nat. xxxi. p. 494 (1819); Bonn. et Vieill. Enc. Méth. ii. p. 599 (1823).

Cinnyris politus, Vieill. N. Dict. d'Hist. Nat. xxxi. p. 500 (1819, ex Sparrm.); Aud. et Vieill.

Enc. Méth. ii. p. 586 (1823); Less. Man. d'Orn. ii. p. 29 (1828); id. Traité d'Orn. i. p. 296. no. 19 (1831); Jerd. Madras Journ. xi. p. 225. no. 233 (1840).
Green-gold Creeper, Lath. Gen. Hist. B. iv. p. 237. no. 26 (1822).
Cinnyris macassariensis, Aud. et Vieill. Enc. Méth. ii. p. 592 (1823, ex Seba, pl. 63. fig. 3).
Nectarinia lotenia, Jard. Monogr. Sun-birds, pp. 220, 263, pl. 23 (1842); Blyth, J. A. S. B. xii. p. 978 (1843); Gray, Gen. B. i. p. 98 (1847); Blyth, Cat. B. Mus. As. S. Bengal, p. 224. no. 1359 (1849); Layard, Ann. Nat. Hist. 2nd series, xii. p. 175. no. 61 (1853); Hartl. J. f. O. 1854, p. 165; Gould, B. Asia, part viii. p. 3, pl. 3 (1856).
Nectarinia omnicolor, Gray, Gen. B. i. p. 99 (1847).
Arachnechthra lotenia, Cab. Mus. Hein. i. p. 105. no. 571 (1850); Reichb. Handb. Scansoriæ, p. 294. no. 690, pl. 579. figs. 3937-38 (1854); Horsf. & Moore, Cat. B. Mus. E.I. Comp. ii. p. 743. no. 1084 (1856-58); Jerd. B. Ind. i. p. 372. no. 235 (1862); Walden, Ibis, 1870, p. 23; Holdsworth, P. Z. S. 1872, p. 434; Swinhoe, Ibis, 1873, p. 229; Legge, Ibis, 1875, p. 275.
Arachnothera lotenia, Gray, Hand-l. B. i. p. 112. no. 1382 (1869).

♂ *ad.* suprâ saturatè metallicè bronzino-iridis lilacino nitens: alis saturatè brunneis, tectricibus minimis et medianis scapularibusque dorso concoloribus: rectricibus indigotico-nigris, metallicè violaceo angustè limbatis, capitis collique lateribus metallicè bronzinis dorso concoloribus, gutture imo violaceo lavato: vittâ angustâ præpectoralî saturatè rubrâ chalybeo lavatâ: fasciis pectoralibus lætè flavis, vix aurantiaco striatis: corpore reliquo subtùs cum subalaribus subcaudalibusque saturatè brunneis: rostro pedibusque nigris: iride saturatè brunneâ.

♀ *ad.* suprâ brunnea, vix olivascens-flavo lavata: alis dorso concoloribus: rectricibus nigris, externis albo terminatis: subtùs fulva: alis infrâ brunneis, remigibus intùs et subalaribus albis, his flavo lavatis.

Hab. in insulâ Ceylonensi et in peninsulâ Indicâ meridionali.

Adult Male. Upper parts deep metallic bronzy-green, shaded with lilac; wings dark brown, with the least and median series of wing-coverts and the scapulars of the same metallic colour as the back; tail blue-black, the feathers narrowly edged with metallic violet; the sides of the head and neck and the chin metallic bronze like the upper parts; the throat gradually shades into metallic violet towards the crop, below which is a rather narrow deep-red pectoral band glossed with steel-blue; pectoral tufts bright yellow, slightly streaked with orange-red; remainder of the breast, under tail-coverts, and under surface of the wings dark brown; bill and legs black; irides dark brown. Total length 5 inches, culmen 1.1, wing 2.25, tail 1.55, tarsus 0.65.

Adult Female. Upper parts brown, very slightly washed with olive-yellow on the edges of the feathers; wings similarly coloured; tail black, with some of the outer feathers tipped with white; underparts buff; under surface of the wings brown, with the inner margins of the quills and the coverts white, the latter tinted with yellow. Total length 4.3 inches, culmen 0.9, wing 2.05, tail 1.5, tarsus 0.6.

Male in moult. Similar in plumage to the adult female, but mottled all over with the more brilliant feathers of the full dress.

HAB. Ceylon and Southern India.

THE present species belongs to the purple-backed section of my "dark-metallic" group, or, in other words, to the Indian species of this group which formed the genus *Arachnechthra*, Cabanis. The characters by which the present species may be at once recognized are the long and very strongly curved bill and the brown abdomen.

There appear to be two races, viz. the Ceylon race, with the bill generally longer and more curved, and with the pectoral tufts usually paler, often without any signs of the bright scarlet which is generally to be met with in the continental birds. Although it is well not to neglect remarking upon these races, they should not, in my opinion, be separated specifically, more than the Ceylon and continental races of *Cinnyris zeylonicus* or the eastern and western races of *C. asiaticus* (*C. brevirostris* and *C. intermedius*).

Of its distribution Messrs. Hume and Davison write to me:—"As far as our present knowledge goes, this species is confined to Ceylon and the Indian peninsula south of 15° north latitude. It is a bird of the plains, and does not ascend the hills, but is common in localities such as Calicut, Trinchinopoly, Salem, and Madras itself."

The type specimen, an adult male, was sent home by Governor Loten from Ceylon. In this island, according to Mr. Layard, it is very plentiful, especially in the southern and midland districts, and constructs a nest exactly similar to that of *C. asiaticus*. In the south-eastern division of Ceylon it is said by Captain W. V. Legge (*Ibis*, 1875, p. 275) to be partially represented by the much more numerous *C. asiaticus*. At Colombo Mr. Holdsworth found it to be very common; but, he observes, "I have no note of its occurrence at Aripo. Some specimens have the bill very much curved."

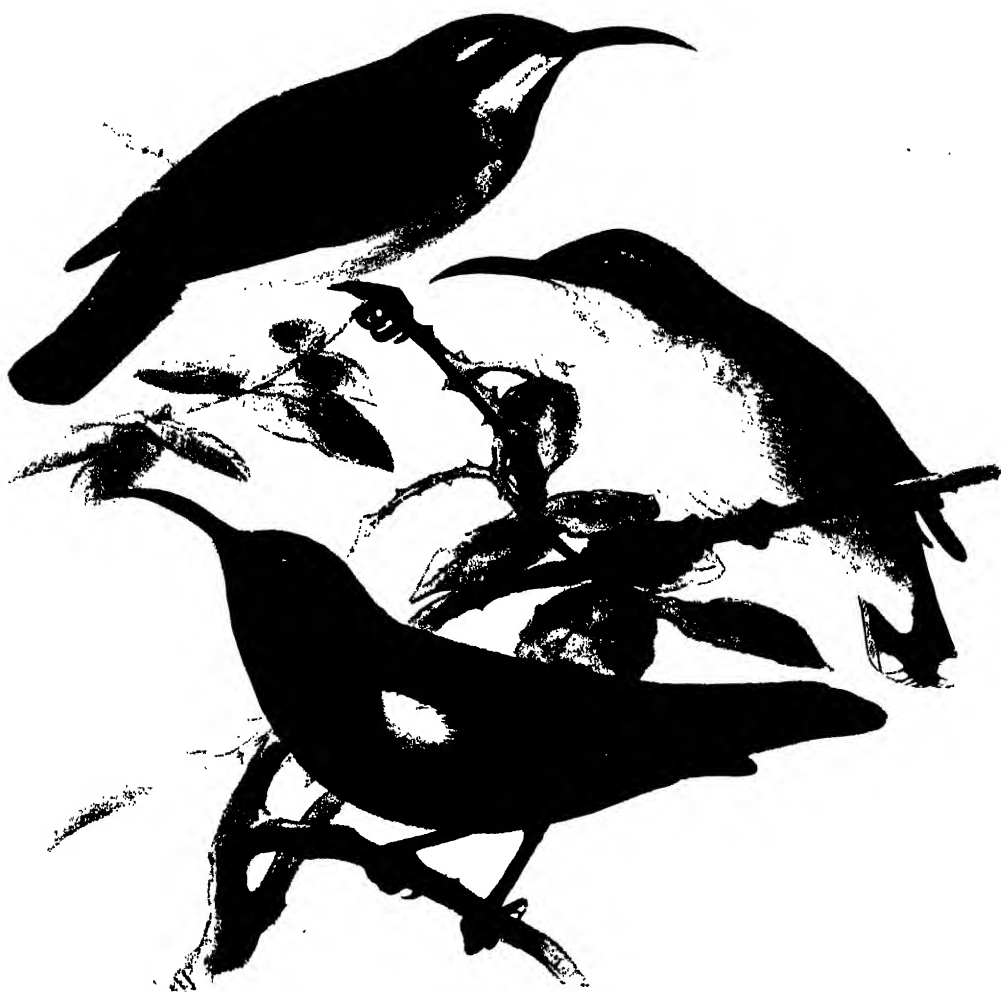
At Galle Mr. Swinhoe met with it in April, and believes it was then breeding in the neighbourhood; "the gizzard," he observes, "contained a number of small *Pipulæ* (hairy long-legs) entire." This shows that although spiders and honey are the more usual food of all the species of Sun-birds, they do not refuse to capture any soft and suitable-sized insects which may come in their way.

On the Indian peninsula, according to Dr. Jerdon, "it is common along the Malabar coast, and also tolerably so in the more wooded parts of the Carnatic, as about Madras and other large towns. It frequents both jungles and gardens. At Tellicherry I have seen it frequently enter my verandah to feed upon spiders. I have not observed it elsewhere in India."

Seba tells a story, which has frequently been repeated by the older writers, that the young of this bird often falls a prey to the great spider (*Aranca avicularia*); and Latham adds:—"This is not peculiar to the brood of this species; for it is the case with respect to every other whenever the insect can gain the superiority." Doubtless the large spider, if he could gain the superiority, would enjoy the meal; but I cannot conceive any spider having much chance against these long sharp-billed active little birds; and so constant is the attendance of the parent birds upon their young, that few indeed must be the opportunities left for the spider to approach the young unobserved.

The figures of the adult male and female, as well as my description of the female and male in moult, are taken from a mainland bird, while my description of the adult male is from a Ceylon specimen.

The references to this species, although very numerous, are remarkably devoid of information. The Marquis of Tweeddale, in his article upon this species (*Ibis*, 1870, p. 23) includes in the synonymy *le Sucrier bronzé*, Levaill., and *Cinnyris aneus*, Vieill.; this bird, if not entirely fictitious, as is probably the case, would, in my opinion, more probably belong to a species which has yet to be rediscovered than to *C. lotenius*.



CINNYRIS ASIATICUS.

(PURPLE SUN-BIRD.)

- Purple Indian Creeper*, Edwards, Gleanings Nat. Hist. ii. p. 116, pl. 265 (1760).
? *Certhia currucaria*, Linn. S. N. i. p. 185. no. 6 (1766); P. L. S. Müll. S. N. ii. p. 256. no. 6 (1773); Gm. S. N. i. p. 474. no. 6 (1788); Lath. Ind. Orn. i. p. 285. no. 15 (1790); Shaw, Gen. Zool. viii. p. 221 (1811); Bechst. Kurze Uebers. p. 180. no. 15 (1812).
? *Grey Creeper*, Lath. Gen. Syn. i. p. 714 (1781); id. Gen. Hist. iv. p. 231. no. 19 (1822).
Yellow-winged Creeper, Lath. Gen. Syn. Suppl. i. p. 133. no. 59 (1787); id. Gen. Hist. iv. p. 250. no. 44 (1822).
Certhia asiatica, Lath. Ind. Orn. i. p. 288. no. 22 (1790); Bechst. Kurze Uebers. p. 182. no. 22 (1812).
Certhia chrysoptera, Lath. Ind. Orn. i. p. 299. no. 64 (1790).
Sugar-Creeper, Lath. Gen. Syn. Suppl. ii. p. 159. no. 4 (1801); id. Gen. Hist. iv. p. 238. no. 27, cum var. *a* (1822).
Mahratta Creeper, Lath. Gen. Syn. Suppl. ii. p. 164. no. 20 (1801).
Certhia mahrattensis, Lath. Ind. Orn. ii. Suppl. p. 36. no. 3 (1801).
Soui-manga violet, Aud. et Vieill. Ois. Dor. ii. p. 31, pl. 12 (1802).
Soui-manga à cravatte violette, Aud. et Vieill. tom. cit. p. 35, pl. 15.
Soui-manga à cravatte bleue, Aud. et Vieill. tom. cit. p. 53, pl. 31.
Soui-manga à ceinture orange, Aud. et Vieill. tom. cit. p. 56, pl. 34.
Soui-manga aux ailes jaunes, Aud. et Vieill. tom. cit. p. 65.
Certhia nitens, Hermann, Obs. Zool. p. 137 (1804).
Certhia saccharina, Shaw, Gen. Zool. viii. p. 258 (1811).
Certhia cincta, Bechst. Kurze Uebers. p. 193. no. 83 (1812).
? *Cinnyris currucaria*, Cuv. Règne Anim. i. p. 412 (1817).
Cinnyris mahrattensis, Vieill. N. Dict. d'Hist. Nat. xxxi. p. 508 (1819); Bonn. et Vieill. Enc. Méth. ii. p. 595 (1823); Sykes, P. Z. S. 1832, p. 99. no. 136; Jerd. Madr. Journ. xi. p. 224. no. 232 (1840).
Eastern Creeper, Lath. Gen. Hist. iv. p. 232. no. 21 (1822).
Cinnyris cyaneus, Bonn. et Vieill. Enc. Méth. ii. p. 599. no. 56 (1823).
Cinnyris indicus, Bonn. et Vieill. tom. cit. p. 599. no. 59 (1823).
Cinnyris iodeus, Less. Dict. Sc. Nat. i. p. 24 (1827).
Cinnyris currucaria, Less. Man. d'Orn. ii. p. 28 (1828); id. Traité d'Orn. i. p. 297. no. 26 (1831); Sykes, P. Z. S. 1832, p. 98. no. 133.
Cinnyris chrysopterus, Less. Man. d'Orn. ii. p. 35 (1828).
Cinnyris asiaticus, Less. tom. cit. p. 36; Bp. Consp. Av. i. p. 408. no. 37 (1850).
Cinnyris orientalis, Horsf. P. Z. S. 1831, p. 122. no. 105; Bulger, P. Z. S. 1854, p. 257.
Cinnyris epauletta, Hodgs. Ind. Rev. ii. p. 272 (1837).

- Cinnyris strigula*, Hodgs. tom. cit. p. 272; Gray, Zool. Misc. 1844, p. 82.
- Nectarinia mahrattensis*, Jard. Monogr. Sun-birds, pp. 222, 264, pl. 24 (1843); Blyth, J. A. S. B. xii. p. 973 (1843); id. J. A. S. B. xiv. p. 557 (1845); Gray, Gen. B. i. p. 98. no. 51 (1847); Hartl. J. f. O. 1854, p. 165.
- Nectarinia chrysoptera*, Gray, Gen. B. i. p. 98. no. 78 (1847).
- Nectarinia asiatica*, Blyth, Cat. B. Mus. A. S. B. pp. 224, 328. no. 1360 (1849); Layard, Ann. Nat. Hist. (2) xii. p. 175 (1853); Gould, B. Asia, pt. 8, pl. 2 (1856); Moore, P. Z. S. 1857, p. 101; id. P. Z. S. 1858, p. 497; Pelzeln, Ibis, 1868, p. 307.
- Arachnechthra currucaria*, Cab. Mus. Hein. i. p. 105. no. 572 (1850); Jerd. Ibis, 1872, p. 17.
- Arachnechthra asiatica*, Reichb. Handb. Scansoriæ, p. 295. no. 691, pl. 579. figs. 3939-41 (1854); Jerd. B. Ind. i. p. 370 (1862); Beavan, P. Z. S. 1864, p. 375; Bulger, P. Z. S. 1866, p. 569; Beavan, Ibis, 1869, p. 421; Walden, Ibis, 1870, p. 20; Holdsworth, P. Z. S. 1872, p. 434; Hume, Nests & Eggs Ind. B. p. 151 (1873); id. Str. F. 1873, p. 174; Cock and Marshall, tom. cit. p. 351; Adams, tom. cit. p. 374; Lloyd, Ibis, 1874, p. 408; Ball, Str. F. 1874, p. 396; Hume, tom. cit. p. 473; Legge, Ibis, 1875, p. 285; Morgan, tom. cit. p. 315; Hume, Str. F. 1875, p. 87; Brooks, tom. cit. p. 233; Fairbank, Str. F. 1876, p. 256; Armstrong, tom. cit. p. 313; Hume, tom. cit. pp. 393, 458.
- Arachnechthra mahrattensis*, Reichb. Handb. Scansoriæ, p. 295. no. 692 (1854).
- Cyrtostomus currucaria*, Reichb. tom. cit. p. 308. no. 724. pl. 570. fig. 3890.
- Arachnothera asiatica*, Gray, Handl. B. i. p. 112. no. 1381 (1869).
- Arachnechthra intermedia*, Hume, Ibis, 1870, p. 436; Jerd. Ibis, 1872, p. 18; Hume, Nests & Eggs Ind. B. p. 154 (1873).
- Nectarinia (Arachnechthra) brevirostris*, Blanf. Ibis, 1873, p. 86; id. Eastern Persia, ii. p. 220, pl. 14 (1876).

♂ ad. suprâ ex violaceo chalybeus, viridi nitens: alis saturatè brunneis, tectricibus minimis et medianis et scapularibus chalybeis dorso concoloribus: rectricibus nigris, vix metallicè violaceo limbatis: subtùs niger, metallicè violaceo nitens: capite laterali et gutture chalybeis dorso concoloribus vix virescentioribus: mento et fasciâ latâ per gulam mediam ductâ saturatè metallicè violaceis, hæc præpectoraliter magis chalybeâ: fasciis pectoralibus flavo et aurantiaco-rubro mixtis.

♀ ad. suprâ cinerascenti-brunnea, capitis lateribus dorso concoloribus, supercilio fulvido lato, vix tamen distincto: alis saturatè brunneis, plumis cinerascenti-brunneo limbatis: rectricibus nigris, quibusdam externis albo terminatis, externis latius apicatis: subtùs fulvescens, gulâ inferiore et pectore medio flavo adumbratis.

Hab. in regione Indicâ.

Adult Male. Upper parts violet-shaded steel-blue, glossed with dark green; wings dark brown, with the least and median series of coverts and the scapulars steel-blue like the back; tail black, the feathers partially edged with metallic violet; underparts black, glossed with metallic violet; sides of the head and throat steel-blue like the back, or slightly greener; chin and a broad central band down the throat deep metallic violet, which colour shades into steel-blue on the crop; pectoral tufts yellow and orange-red; under tail-coverts broadly, and more or less distinctly, edged with violet-shaded steel-blue; under-surface of the wings brown with the coverts black; bill and legs black; irides dark brown. Total length 4.2 inches, culmen 0.65, wing 2.2, tail 1.5, tarsus 0.6.

Adult Female. Upper parts ashy brown; the sides of the head of the same colour, with a broad but rather indistinct buff eyebrow; wings dark brown, the feathers with pale ashy brown edges; tail black with a green gloss, and with white tips to some of the feathers, broadest on the outer ones; beneath creamy white, shaded with yellow towards the base of the throat and on the centre of the breast; under surface of the wings ashy brown, with the coverts and the inner margins of the quills white. Total length 3.8 inches, culmen 0.7, wing 2.15, tail 1.4, tarsus 0.6.

Male in moult (1st stage). Similar in plumage to the adult female, excepting that it has a rather narrow metallic violet band down the centre of the throat.

Male in moult (2nd stage). Similar in plumage to the last, excepting that it has the lesser wing-coverts and a portion of the lower back metallic, and the dark band on the throat extends to about halfway down the breast.

HAB. Ceylon; India, northward to the Himalayas; westward it extends through Sindh and Baluchistan to the confines of Persia, and is possibly to be found in Southern Arabia. To the eastward it ranges through Assam, Tipperah, Chittagong, Arracan, Burmah, and Tenasserim, but in this direction has not been collected southward of the river Yé.

Obs. In about half the adult males which I have examined there is present a more or less distinct reddish brown pectoral band. This character occurs quite irrespectively of the locality whence the specimens came; nor is there any corresponding difference in the measurements and general shade of the metallic parts, which vary considerably in some individuals.

A typical specimen of *Arachnechthra intermedia*, Hume, from Tipperah differs from the adult male above described in having the metallic parts more strongly glossed with violet, and the pectoral band present. Total length 4.4 inches, culmen 0.7, wing 2.2, tail 1.55, tarsus 0.6.

A typical specimen of *A. brevirostris*, Blanford, collected by that gentleman at Bampoor, in Baluchistan, and now in the British Museum, differs in having the metallic parts more strongly glossed with green. It has no pectoral band. Total length 4.1 inches, culmen 0.55, wing 2.2, tail 1.6, tarsus 0.6.

I have examined a very large series of adult males, including three typical specimens of Mr. Hume's *A. intermedia*, and four of *A. brevirostris*, Blanford; and it appears to me quite evident that all these specimens belong to one species.

The "adult male" and the "male in moult (2nd stage)," which I have here described, were collected by Sir W. Elliot in Madras. The "adult female" was collected by Dr. Hinde at Kamptee, and the "male in moult (1st stage)" from Nepaul. All of these specimens are in the British Museum. The illustrations are drawn from specimens in the collection of the Marquis of Tweeddale, and represent the adult male and female and the male in moult.

THE "dark metallic group" of Sun-birds includes the typical species of *Cinnyris*. It seems to me to be a very natural group, in which, however, the distribution of the colour is of more value than the length and curvature of the bill, or the form of the tail.

At some time or another the larger portion of these species have been separated off as types of genera, founded mostly upon the last-named characters, which, however, are so variable as to be little reliable. I propose to assemble the species into one group, which may be thus simply characterized:—head, neck, and back of metallic colours; abdomen black or dark brown. The only species of another group which corresponds in these characters is *Nectarinia tacaze*, a bird which, in my opinion, forms the connecting link between *Nectarinia* and *Cinnyris*.

The present very common Indian species may be at once recognized by its having the upper

parts violet or greenish shaded steel-blue, by its bright yellow and red pectoral tufts, and by the black abdomen. In its general colouring it nearly approaches *C. lotenius*, but is readily distinguished from that bird by the black instead of brown abdomen, as well as by the smaller size of the bill.

In the notes sent to me by Messrs. Hume and Davison, Mr. Hume observes:—"This species has been rather hardly treated by us in India of late years. First I divided off the larger-billed, more brilliantly coloured eastern and southern birds as *Arachnechthra intermedia*; and now Mr. Blanford has separated the rather smaller shorter-billed western birds (which moreover have the under surface in the winter plumage paler and whiter) as *A. brevirostris*.

"In my opinion neither of these species merit retention; but certainly of the two, *A. intermedia* is the most strongly characterized. *A. brevirostris* appears to me to be nothing but the ordinary *A. asiatica* of the whole of the dry-plains portion of India; and I think I understood Mr. Blanford himself to say that Sindh specimens were probably not separable from *A. brevirostris*.

"I have measured the bills of a considerable number of specimens, and with the following results:—

"From Sehwan and Larkhama, Sindh; Sambhur, and near Moulmein: bill 0·60 inch.

"From Rangoon; Kutch; Mount Aboo: 0·62.

"From Dera Ghazi Khan; Muttra; Sambhur; Sehwan; Goorgaon; and Bampur, Baluchistan; and one of Mr. Blanford's specimens of *A. brevirostris*: 0·63.

"From Goorgaon: 0·64.

"From Bombay; Goorgaon; Sambhur; Mussoori; Attaran R.; Burmah; Pahpoon: 0·65.

"From Goorgaon; Raipoor; Rangoon: 0·67.

"From Muttra, Sindh; Raipoor; Ootacamund: 0·68.

"From Ryoukphor; Lutocorin; Simla; Agra: 0·69.

"From Tipperah; Mynal; Travancore; Tipperah; Ootacamund; Raipoor; Dacca; Mate-reau; Salween district, Burmah: 0·7.

"From Salem; Sumbulpoor: 0·72.

"From Raipoor; Salem; Tipperah; Dacca: 0·73.

"From Raipoor: 0·74.

"From Raipoor: Dacca: 0·75.

"All these specimens are perfect adult males. Other measurements differ somewhat similarly, but not quite proportionally; and I cannot see myself how the difference in dimensions will assist any one to divide this species. *A. brevirostris* is said to have a green instead of a purple gloss on the upper parts; but so have at least three fourths of the Indian birds from the plains portions of the country. I have a dozen specimens from different parts of India absolutely inseparable in every respect from the specimen of *A. brevirostris*, Blanford, which I send you. To see the purple gloss in perfection you must get a Rangoon or Cominillah bird. In my opinion all that can be said is, that the western birds from the dry-plains country run smaller and greener, while those from the well-watered eastern and northern regions run, as a rule, larger and more purple.

"I should unhesitatingly suppress *A. intermedia* myself; and I think *A. brevirostris* should likewise be suppressed.

“As to distribution I need only say that it extends far into the Himalayas, that I have obtained it in the valley of the Beas almost at the foot of the Rohung pass, in the valley of the Sutlej as far as Chini, in the valley of the Ganges, or rather Bhagirati, to within four or five marches of Gangautri; but eastward of this I do not remember observing it at any great distance from the plains. Westward, if I am correct in uniting *A. brevirostris*, it extends to the borders of Persia. Eastward it is found far up in the valley of Assam, and thence extends through the Burmese countries and British Burmah to Arracan, Pegu, and the northern and central portions of Tenasserim; but the River Yé appears to be here its absolute southern boundary, beyond which we have never observed a single specimen.”

In Ceylon, according to Captain Vincent Legge, it is abundant in the maritime districts and low jungles of Wellaway Korle, especially in the dry shrubby parts; and Mr. Holdsworth observes (*l. c.*), “very abundant at all seasons at Aripo. At a Government rest-house in the extreme south of the island, where I was staying in August 1869, a pair of these birds had a nest in the verandah; it was fastened to the end of an iron rod hanging from the roof, and once used for suspending a lamp. The birds showed very little fear, although I was for several days sitting within a few feet of the nest engaged in the preparation of specimens. I have obtained this species at Nuwara Eliya in October.”

From the Laccadive Islands, off the west coast of Southern India, it has been recorded by Mr. Hume (Str. F. 1876, p. 458). As regards Southern India (in the same volume, p. 393), Mr. F. W. Bourdillon, in his notes on the birds of the Travancore hills, observes:—“This species occurs abundantly in the open jungle near the foot of the hills; it is very active, and keeps up an incessant chirping throughout the hottest part of the day, when nearly all other birds, except the Crimson-throated Barbet, are silent.” We may add that the *Certhia nitens* of Hermann was founded on an adult male from Tranquebar.

According to Dr. Jerdon (Madras Journ. xi. p. 224), “this appears to be the most generally distributed of all the Cinnnyridæ, and is the only one I have met with on the bare tableland. In the Carnatic it is less numerous, I think, than *C. zeylonicus* and *C. lotenius*. The Purple Honey-sucker has a very feeble, but sweet, chirping note. It feeds, like others of the genus, partly on the honey extracted from flowers and partly on minute insects, flies, cicadariæ, &c. It occasionally hovers on the wing before a flower while extracting the honey, but generally hops, or flies rather, among the smaller twigs. Occasionally I have seen it snap at an insect in the air. Whilst feeding it frequently opens and closes its wings. I have seen this bird on the very top of the Neilgherries, which shows what a great amount of cold some of this tropical genus will suffer without inconvenience.”

Mr. Morgan informs us (*l. c.*) that it breeds in the Neilgherries up to an elevation of 6000 feet, as well as in the plains, from February to June, the majority of the nests being constructed in March and April. According to Major Bulger (*l. c.*) it is a common bird in the Neilgherries, at Wellington, constantly about the gardens, where its feeble little song may be frequently heard. The Rev. S. B. Fairbank (*l. c.*) records it as abundant in the vicinity of Khandala, about forty miles south-east of Bombay.

Mr. Leith Adams (P. Z. S. 1858, p. 497) found it to be common in the Deccan, Sindh, Punjab, and lower Himalayan ranges; and, according to his notes, “the song resembles that of

the Chaffinch, is less strong, but more sweet and melodious: call-note loud and varied." This statement differs from that of Mr. Blyth, who likens its song to that of our Willow-Wren. Mr. Phillips (P. Z. S. 1857, p. 101) tells us that it is common all over the North-west Provinces of India. "In winter it may be seen sporting on the sunny side of lofty trees. As soon as the Sahajna (*Hyperanthera maringa*) begins to blossom, it is constantly seen hovering before the white flowers; and as each forest-tree begins to bloom, it rifles them of their sweets. It finds nourishment even in the Chankra flower, and is now (May) every morning to be seen hovering over the poisonous Ak Madar Aling. It is very bold, but does not thrive in confinement, though it will suck out honey from flowers put between the bars of its cage. It moults in the rainy season; and at this time its whole breast is yellow, with the exception of a purple line in the middle; the back feathers are all of a dull olive-green, but with one or two purple feathers appearing."

Mr. Gould, in his 'Birds of Asia,' writes:—"The late Hon. F. J. Shore killed it at Hurdwar in April, and under the date of June 19th remarks—"I find this species is common in the warm parts of Ghurwal, and that it is also met with in the warm valleys of the Himalayas, in the Western Provinces, and in the Saugur and Nurbudda territories. It hovers over flowers like a Humming-bird while sucking the nectar; I have also observed it on twigs destitute of flowers, engaged apparently in capturing small insects. The yellow and orange patch on the sides of the chest is scarcely perceptible when the wing is closed; but every movement of the body shows them very conspicuously."

According to Major Lloyd (*l. c.*) it is "very common in the Kattiawar province, in Western India."

Amongst the other numerous references to this species in the North and North-western Provinces we find the following notes. Captain Cock and Marshall (*l. c.*), while in the vicinity of Murree, took several of their nests in May and June in the lower valleys, at about 4000 feet above the sea. Captain Beavan (*Ibis*, 1869, p. 421) met with it breeding at Umballah. Captain Boys procured specimens at Sultampore and Buares in January, and at Jucunie in November. According to his observations, the young males resemble the females for the first year; and when commencing the second year to assume their full plumage, the throat and breast are the parts which first show the adult dress.

According to Mr. Hume (*Str. F.* 1873, p. 174), it appears to be very abundant all over Sindh. All the specimens he obtained there up to the middle of February were still in winter dress.

To the eastward of Sindh the greener and short-billed variety, *Nectarinia brevirostris*, Blanford, is recorded by that gentleman, in his interesting work on his travels in Eastern Persia, from Bahu Kalat, near Mand, Jalk, Kalagan, Dizak, Ispidan, and Bampur, in Baluchistan; and from Rigan and Bam in the Narmashir territory. He observes:—"I first met with this Sun-bird at a short distance from the Makran coast; and I subsequently found it in all the parts of Baluchistan traversed, up to an elevation of 4000 feet, wherever there was a sufficiency of bushes. Its favourite resort appeared to be the thickets, chiefly of tamarisk, in some of the stream-beds; but it was very common in gardens at Bampur and Bam, and appeared to have an especial predilection for rose-bushes. Its habits differed in no respect from those of the allied species, except

that it occurred in small patches of vegetation sparingly scattered in a land of desert and barren rock. When I first came across specimens, towards the end of January, the males were in winter plumage; but in the course of the next month all rapidly acquired their breeding-livery, and those shot in March had completed their moult. This bird is very probably confined to Baluchistan and the low portion of Fars, in Southern Persia, perhaps ranging along the north-east coast of the Persian Gulf; but it has not been obtained in the neighbourhood of Bushire or Shiraz. It may extend northward across the deserts of Sistan to the Helmund and Afghanistan; and it may possibly inhabit Kelat; but in Sindh it appears to be replaced by *N. asiatica*. In December, near Maskat, in Arabia, I saw a *Nectarinia* which I had at the time no means of shooting; it was not in breeding-plumage; and I cannot form an idea as to whether it was the present species or *N. osea*, or an undescribed form."

In the north-eastern provinces of India, and eastward into Burmah, the more violet-shaded, long-billed variety, *A. intermedia*, Hume, is generally to be met with. From Chota Nagpore. Mr. Bull observes (Str. F. 1874, p. 396):—"It is nearly always to be found on the parasitical species of *Loranthus* and on *Grislea tomentosa* when in flower."

According to Mr. Blyth (J. A. S. B. xii. p. 978), "it visits the neighbourhood of Calcutta only in the cold season, when it is not uncommon. On its arrival both sexes are clad in the plumage referred to *N. currucaia* by Sykes; and before they leave all have more or less completely assumed the nuptial dress. In Nepaul it is probably a summer visitant only. I have lately procured the young of this species, which is dark olive-green above, and tolerably bright yellow on the underparts. To this plumage would succeed the purple breeding-dress; and the *Cinneryis strigula*, Hodgson, would seem to be founded on a specimen which had begun to throw out the purple feathers as a long central stripe from chin to breast. I have found a skin referred by Mr. Hodgson to the female of his *C. strigula*, but which has no trace of 'greenish yellow' on the underparts, these being uniform dull albescent. As far as I can make out from the condition of the specimen, I should judge it to be an old female (*N. mahrattensis*) in non-breeding plumage." At Maunbhoom, in the vicinity of Barrackpore, Captain Beavan found it on the 15th of April to be breeding, and very common."

In the eastern district of the Irrawaddy delta Mr. Armstrong records it (*l. c.*) as extremely abundant in the neighbourhood of Rangoon and Syriam; but he only met with it two or three times between Elephant Point and China Bakeer. In Upper Pegu, according to Mr. Oates (Str. F. 1875, p. 87), it is very common. "Birds in black plumage are the rule here, the so-called winter plumage being rarely seen."

So much has been written upon the breeding of this species that I consider it would be superfluous for me to give here more than a slight sketch of what has already appeared in print. Mr. Layard (Ann. Nat. Hist. 1853, p. 155) describes the nest as "an elongated domed structure, generally suspended from the extremity of a twig of some low bush, and artfully covered with cobweb, in which," he says, "I have often seen the spiders still weaving their toils, having extended the web to the surrounding branches, thus rendering the deception still more effective; and it would seem that the birds are aware of it, and left their helpers undisturbed."

Dr. Jerdon (B. India, i. p. 371) writes:—"A pair built their nest just outside my house-door at Julna. It was commenced on a thick spider's web, by attaching to it various fragments

of paper, cloth, straw, grass, and other substances, till it had secured a firm hold of the twig to which the spider's web adhered; and the nest suspended on this was then completed by adding other fragments of the same materials. The entrance was at one side, near the top, and had a slight projecting roof or awning over it. The female laid two eggs, of a greenish grey tinge with dusky spots. The first nest was accidentally destroyed after the eggs were laid; and the couple immediately commenced building another in a small tree at the other side of the door, and in this instance, as in the last, commenced their operations on a fragment of spider's web."

According to Mr. Morgan (Ibis, 1875, p. 315) the nest "is composed of small twigs, pieces of grass and leaves, and is lined with the down of thistles and silk cotton. It is generally adorned with the excrement of caterpillars, small bits of rag, paper, &c. A pair that built in front of my office at Kurnool, in an acacia tree, had the most extraordinary nest I have ever seen. It was ornamented with bits of blotting-paper, twine, and old service stamps that had been left lying about. The whole structure was most compactly bound together with cobwebs, and had a long string of caterpillar-excrement wound round it. It breeds from February to June, the majority of the nests being constructed in March and April. The eggs are thickly spotted with dusky brown on a greenish grey ground, the usual number being three."

From Mr. Hume's exhaustive article upon this subject (Nests and Eggs Ind. B. p. 151), we may glean that it breeds at very different periods in different localities:—in Central Daub mostly from February to April, in Jhansie and Saugur from May to August; and at Agra he has taken nests in June, and in Hensee in July. They breed all over the plains of India, and up to the summits of the Neilgherries and up to 5000 feet in the Himalayas. They certainly have two broods in rapid succession, usually in the same nest, and possibly more. They will build almost anywhere, in and about gardens, and in the verandahs of houses, in clumps of acacia trees, especially where these overhang water, and far away in the jungle, or in the cane-brakes of the Terai. The nests are generally suspended from the fine terminal twig of some branch or the frond of a cane.

The nest is composed of all kinds of materials beautifully woven together with the silkiest fibres; and cobwebs, hair, fine grass, pieces of decayed wood, lichens, rags, thorns, &c. are all employed. The body of the nest is oval, generally with all sorts of little pendent pieces of wood &c. hanging below, while the apex of the oval is prolonged into a cone, meeting the point of support. A little above the centre of the oval a small circular aperture is worked; and just above it a projecting cornice, 1 to 1½ inch wide, is extended; then on the opposite side of the oval the wall of the nest is pushed out or bulged out a little so as to give room for the sitting bird's tail. The bulging-out of the back of the nest is one of the last portions of the work; and the female may be seen going in and out, trying the fit, over and over again. When sitting, the little head is just peeping out of the hole under the awning. This awning is not always present; for, according to Mr. F. R. Blewitt, out of eighteen nests collected by him only seven or eight had it; and he adds, "I venture to state that this awning is only added when the nest is about perpendicular in position, and when, therefore, a necessity exists for this additional protection for the entrance. I am the more particular to note this fact, because every nest with the awning was, when discovered, in a perpendicular position; while those I saw without it were so attached as to stand out a little slantingly, and had the entrance on what may be called the underside."

According to Captain G. F. L. Marshall it breeds in March and April in the Saharunpoor district, and the nest is generally placed about 3 or 4 feet from the ground.

Mr. Brooks tells us that this species "is seen occasionally in the valleys near Almorah. On the banks of a small river there I found a nest of this bird being built in May. The bird lays in March in the plains."

Mr. R. M. Adam records it as "very common about Sambhur; it breeds during the month of April and up to June. It is curious how fond these birds are of tacking on pieces of paper, and here and there a bright-coloured feather from a Paroquet or a Roller on the outside of their nests. When in Agra a bird of this species built a nest on a loose piece of thatch-cord in my verandah; and on the side of the nest, stuck on like a signboard, was a piece of torn-up letter with 'My dear Adam' on it." This nest was begun on the 18th of April; and "on the 26th," he observes, "I found the bird sitting on the nest, and I presumed it had eggs; on the 27th for the first time I saw the male bird near the nest. All through the time of construction, so far as my observations went, he never assisted the female in the slightest degree. Now he seemed exceedingly happy, fluttering now and then about the nest; and after each careful inspection he was seemingly so pleased with the handiwork of his mate that he perched on an adjoining branch and poured forth a joyous strain, flapping his wings and making his axillary feathers rotate in the most extraordinary manner. On the 13th of May the young were hatched; and I never once observed the male coming near the nest to feed them; about the 24th the birds were well fledged. It does seem strange that the male of this species should not take any part in the construction of the nest, the hatching, or the rearing of the young; but I presume the reason of this is that his conspicuous plumage about the nest would attract the attention of birds that might destroy it."

The normal number of eggs in a nest is two.

So much do the eggs vary that the two extremes of a good series could hardly be believed to pertain to the same species. In shape they are typically a moderately broad oval, considerably pointed towards one end. The ground-colour is greenish, greyish, or brownish white, in some but little, in others almost entirely, obscured by the markings. A certain number of the eggs are pretty uniformly speckled and freckled over the whole surface; but in the majority the markings are densest towards the larger end, where many exhibit more or less perfect caps or zones, and to which locality in some few specimens the markings are exclusively confined. Mr. Hume then likens the colouring to that of the eggs of the Sedge-Warbler, Wagtails, and Larks, and gives as the average measurements 0.64 by 0.46 inch.



CINNYRIS CUPREUS.

(COPPER-COLOURED SUN-BIRD.)

- Soui-manga tricolor*, Aud. et Vieill. Ois. Dor. ii, p. 45, pl. 23 (1802).
Soui-manga rouge doré, Aud. et Vieill. tom. cit. p. 49, pl. 27.
Certhia cuprea, Shaw, Gen. Zool. viii, p. 201 (1811).
Certhia rubrofusca, Shaw, tom. cit. p. 222 (ex Aud. et Vieill. pl. 27).
Certhia aurata, Bechst. Kurze Uebers. p. 193 (1812, ex Aud. et Vieill. pl. 27).
Cinnyris rubrofuscus, Cuv. Règn. Anim. i, p. 412 (1817); Less. Man. d'Orn. ii, p. 45 (1828);
id. Traité d'Orn. i, p. 296 (1831); Bp. Consp. Av. i, p. 406, no. 21 (1831).
Cinnyris nibarus, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 512 (1819); Bonn. et Vieill. Enc.
Méth. p. 597 (1823).
Cinnyris tricolor, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 573 (1819); Bonn. et Vieill. Enc.
Méth. p. 588 (1823).
Red-gilt Creeper, Lath. Gen. Hist. iv, p. 258 (1822).
Cinnyris nigrogaster, Bonn. et Vieill. Enc. Méth. p. 600 (1823).
Cinnyris cupreus, Less. Man. d'Orn. ii, p. 47 (1828); Bp. Consp. Av. i, p. 406, no. 3 (1850);
id. Comptes Rendus, 1854, p. 265; Sharpe & Bouvier, Bull. Soc. Zool. France, 1876,
p. 42.
Nectarinia nibarus, Drapiez, Dict. Class. xv, p. 514 (1829).
Nectarinia tricolor, Drapiez, tom. cit. p. 515.
Cinnyris erythronotus, Swains. B. W. Afr. ii, p. 130, pl. 15 (1837).
Nectarinia rubrofusca, Jard. Monogr. Sun-birds, p. 187 (1842); Gray, Hand-l. B. i, p. 108,
no. 1330 (1869).
Nectarinia cuprea, Jard. Monogr. Sun-birds, p. 254 (1842); id. Contr. Orn. 1848; Hartl.
J. f. O. 1854, p. 11; Licht. Nomencl. Av. p. 55 (1854); Müll. J. f. O. 1855, p. 13, no. 141;
Hartl. tom. cit. p. 360; id. Orn. W.-Afr. p. 48 (1857); Cass. Pr. Philad. Acad. 1859, p. 35;
Heine, J. f. O. 1860, p. 136; Hartl. J. f. O. 1861, p. 109; Heugl. J. f. O. 1864, p. 262;
id. Reise weissen Nil, p. 337 (1869); Sharpe, Ibis, 1869, p. 188; Gray, Hand-l. B. i,
p. 108, no. 1328 (1869); Heugl. Orn. N.O.-Afr. p. 231 (1871); Sharpe, Cat. Afr. B. p. 40,
no. 372 (1871); Shelley & Buckley, Ibis, 1872, p. 287; Reichenow, J. f. O. 1873, p. 217;
Ussher, Ibis, 1874, p. 60; Sharpe, P. Z. S. 1874, p. 306; Bouvier, Cat. Ois. Marche, &c.
p. 14 (1875); Reichenow, J. f. O. 1875, p. 30; id. J. f. O. 1877, p. 25.
Aidemonia cuprea, Reichb. Handb. Scansoriæ, p. 284, no. 658, pl. 571, figs. 3894-95 (1854).
Nectarinia porphyrolama, Heugl. Syst. Uebers. Vög. N.O.-Afr. p. 20 (1856).
Nectarinia chalybea, Hartl. Ibis, 1862, pp. 337, 341; Bocage, Jorn. Lisb. 1866, p. 135;
Sharpe, P. Z. S. 1873, p. 717; Gadow, J. f. O. 1876, p. 418; Bocage, Jorn. Lisb. 1876,
p. 262.
Nectarinia fulgens, Würt. Icon. Av. pl. 58, teste Heugl. J. f. O. 1867, p. 300.

♂ *ad.* suprâ pulchrè et metallicè cupreus, vix bronzino nitens, dorso postico, uropygio et supracaudalibus magis metallicè lilacinis: tectricibus alarum medianis et minimis metallicè lilacinis: alâ reliquâ indigotico-nigrâ, tectricibus majoribus angustè purpureo vel obscurè lilacino limbatis: rectricibus indigotico-nigris, basaliter viridi marginatis: facie laterali et gutture toto lætè metallicè cupreis, præpectore magis metallicè lilacino: corpore reliquo subtùs velutino-nigro, subcaudalibus metallicè violaceo marginatis: subalaribus nigris, lilacino lavatis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* mari dissimilis: suprâ olivascens, tectricibus alarum dorso concoloribus: majoribus et remigibus brunneis, olivaceo marginatis: rectricibus nigris, pallidè brunneo terminatis: plagâ anteculari nigricante: regione paroticâ sordidè brunneâ: genis et corpore subtùs olivascenti-flavis, hypochondriis viridescens: subalaribus olivascenti-flavis.

HAB. in Africâ septentrionali-orientali et occidentali.

Adult Male. Entire head and neck copper-colour, with green reflections in certain lights, gradually shading into lilac-bronze on the back and scapulars, and becoming almost pure metallic lilac on the least and median series of wing-coverts and on the upper tail-coverts; remainder of the wings and tail black, with the greater series of wing-coverts partially glossed with metallic green and lilac on their outer webs; tail-feathers edged with metallic green; the copper-coloured throat shading into metallic lilac on the front of the chest; remainder of the breast and the under tail-coverts black, the latter occasionally edged with metallic green and lilac; under surface of the wings black, with a few of the coverts partially edged with metallic lilac; bill and legs black; irides dark brown. Total length 4 inches, culmen 0.6, wing 2.2, tail 1.85, tarsus 0.6.

Adult Female. Upper parts olive; wings dark brown with olive edges to the feathers; upper tail-coverts dark brown, broadly edged with olive; tail black, with pale ends to a few of the outer feathers, widest on the outermost ones; on the sides of the head a broad, rather indistinct, buff eyebrow, and a broad dark brown band through the eye; cheeks and entire underparts olive-shaded buff, slightly paler towards the chin, brighter and more yellow down the centre of the breast, and more olive on the flanks; under surface of the wings brown, with the inner margins of the quills and the coverts white, the latter tinted with yellow; bill and legs black; irides dark brown. Total length 4.25 inches, culmen 0.6, wing 2, tail 1.6, tarsus 0.6.

Male in moult. Similar in plumage to the female, excepting that the wings are mottled with black feathers, and the lesser wing-coverts with metallic lilac; tail black, with no pale ends to any of the feathers; down the centre of the chin and throat a broad band of copper-coloured feathers.

HAB. Entire West-African region, and on portion of North-east Africa.

Obs. Typically coloured males vary in their measurements:—Length 4 to 4.8 inches, culmen 0.6 to 0.8, wing 2.15 to 2.25, tail 1.65 to 1.95, tarsus 0.6 to 0.65.

THE Copper-coloured Sun-bird may be easily recognized by the bright copper-colour of the entire head, neck, and back; in this it somewhat resembles *Nectarinia tacazze*, but is a much smaller bird, and has a square tail, excepting in a few rare instances, when the two centre tail-feathers are slightly elongated.

It inhabits a portion of North-eastern Africa, and is to be met with throughout the entire

West-African region. In the southern portion of its range, Angola, a strongly marked race has been collected at Cambambe by Mr. Monteiro, and was described as a distinct species by Dr. Hartlaub under the title of *Nectarinia chalcea*.

In North-eastern Africa, according to Von Heuglin, the present species appears to be rather rare; he met with it, however, in Eastern Abyssinia and in the neighbourhood of the Sobat river and White Nile, as far south as the Bari country, just above Gondokoro. He also believes that he saw it in Bogos Land; and in Prince Württemberg's collection he examined a specimen from the southern portion of Fazuklo, between Abyssinia and the White Nile.

In West Africa it is widely and apparently very evenly distributed, from Senegal, whence it has been recorded by Swainson, southwards into Angola. From the northern parts it has been collected by Marche and De Compiègne at Joal, Bathurst, and Daranka; and I have examined specimens in Mr. Sharpe's collection from Dakah, on Cape Verd, Bathurst, Casamanse, Bissao, and Bulama Island; from the Gold Coast, my own and Mr. T. E. Buckley's large series from Cape-coast Castle and Accra; Mr. Blissett's specimens from Elmina; and Governor Ussher's from the river Volta. Reichenow records it from the Camaroons and Cape Lopez. I have further examined specimens from Munda river (*Du Chailla*), Loppée, on the Ogowè (*Marche*), and in the Congo district, from Landana (*Petit*) and from Kabinda (*Sperling*). All these specimens I find agree perfectly in colouring and measurements with typical *Cinnyris cupreus*, although the specimen from Kabinda was identified erroneously by Mr. Sharpe as *Nectarinia chalcea*; and Professor Barboza du Bocage has kindly forwarded to me the *Nectarinia chalcea* of his lists, which also belongs to the typical race.

The claims of *Nectarinia chalcea*, Hartl., to specific rank rest upon the unique type specimen collected by Mr. Monteiro at Cambambe, in Angola, and now in the British Museum. This specimen measures—length 4·7 inches, culmen 0·8, wing 2·5, tail 1·9, tarsus 0·65, and in these respects shows no specific characters. Its chief (and certainly a well-marked) peculiarity is the absence of the fiery-red and lilac tints upon the metallic colour of the plumage. Another character assigned is the green shade, which is very apparent under certain lights on the head, neck, and back; but this play of colours is visible almost, if not quite, to the same extent in many of the other specimens, as for instance in those from the Gold Coast. These reasons, I consider, fully justify us in considering *Nectarinia chalcea*, Hartl., as only a race of *Cinnyris cupreus*. It is one of those peculiar and puzzling forms by no means uncommon in this family, and of which we have already instanced a very similar case with regard to *C. asiaticus* and its varieties *C. intermedius*, Hume, and *C. brevisrostris*, Blanford; and possibly something similar occurs in the "*Hermotimia*" group, which, from not being properly understood, has forced us to recognize so many very closely allied species.

Cinnyris cupreus was first collected on the Gold Coast by Pel, where, according to Governor Ussher, it is common throughout the district: this applies really to the more open portions of the country; for Mr. T. E. Buckley and myself never met with it in the forests of Abrobonko and Aguapim, although we found it not uncommon at Cape-coast Castle, only a few miles from the former place, and very abundant on the plains of Accra, which extend between the range of the Aguapim Mountains and the sea-coast.

At Accra it may be constantly seen perched on the topmost bough of some bush; and at a

short distance nothing but a little black object is to be recognized ; but being frequently on the move, the eye soon catches the flashes of bright metallic colours, which vary with every beat of the wing. When perched, if attracted by an insect passing overhead, it will rise and capture it in the air after the manner of Flycatchers ; but more frequently it may be seen to drop from its bough and rapidly dart, low over the surface of the ground, in pursuit of another male of its own species, or on a visit to some ground-orchid whose bright red flowers have attracted its attention.

One morning at Cape-coast Castle, while the dew-drops still glistened in the valley under the morning sun, I watched for some time two males chasing each other up and down amongst the low and somewhat scattered bushes, crying at intervals in their excitement as they rapidly turned round the edges of the bushes in hot and angry pursuit. Their bright colour glittered in the sun and enlivened the quiet harmony of the bush, which was otherwise only broken by the occasional silver bell-like note of *Dryoscopus major* echoed back by its mate from the depths of the surrounding forest, or by the peculiar gradually descending notes of *Centropus senegalensis*. I was much amused to see one of the stately Cuckoos, disturbed by the near approach of the frolicsome little Sun-birds, leisurely quit the higher branch where it had been singing, and seek retirement in the denser shade of the bush.

I cannot remember ever seeing more than two males together, probably both striving for the affections of the same female ; and as the latter appear by far the least numerous, the males probably fight hard and constantly during the breeding-season ; for on all occasions when I have met them together they appeared to be most quarrelsome.

The nest has been described by Dr. Reichenow (J. f. O. 1875, p. 30). It is oval in form, is suspended from the end of a bough, and is constructed of dry grass and fine roots carefully interwoven together. The inside is lined with the seed-down of plants. It contained two shining brown eggs.

The above descriptions, as well as the illustration, are taken from specimens collected by myself on the Gold Coast.



CINNYRIS NOTATUS.

(MADAGASCAR SUPERB SUN-BIRD.)

Grimpereau noir de Madagascar, Buff. Pl. Enl. 575. figs. 2, 3.

Certhia notata, P. L. S. Müll. Syst. Nat. Anhang, p. 99. no. 32 (1776, ex Buff.); Cass. Pr. Philad. Acad. 1864, p. 244; Walden, Ibis, 1870, p. 24.

Loten's Creeper (part.), Lath. Gen. Syn. ii. p. 715. no. 16 (1802); id. Gen. Hist. B. iv. p. 235. no. 24 (1822).

L'Angala-dian, Aud. et Vieill. Ois. Dor. ii. p. 19, pls. 3, 4 (1802).

Certhia angaladiana, Shaw, Gen. Zool. viii. p. 194, pl. 27 (1811).

Cinnyris lotenius (part.), Bonn. et Vieill. Enc. Méth. ii. p. 590 (1823); Less. Man. d'Orn. ii. p. 25 (1828); id. Traité d'Orn. i. p. 294. no. 11 (1831).

Cinnyris madagascariensis, Quoy et Gaimard, Voy. Astrolabe, Zool. i. p. 225 (1830).

Nectarinia angaladiana, Jard. Mongr. Sun-birds, p. 276 (1843); Müll. J. f. O. 1855, p. 16. no. 179; Hartl. J. f. O. 1860, p. 89; id. Faun. Madag. p. 52 (1861); Roch & E. Newton, Ibis, 1862, p. 272; Selater, P. Z. S. 1863, p. 162; E. Newton, Ibis, 1863, p. 342; id. Ibis, 1865, p. 239; A. Newton, P. Z. S. 1865, p. 834; Verr. in Vins. Voy. Madag. Ann. B. p. 2 (1865); Schl. P. Z. S. 1866, p. 421; Grand. Rev. et Mag. Zool. 1867, p. 355; Schl. & Poll. Faun. Madag. p. 67 (1868); Gray, Hand-l. B. i. p. 109. no. 1336 (1869); Sharpe, Cat. Afr. B. p. 38. no. 354 (1871).

Cinnyris angaladiana, Bp. Consp. Av. i. p. 407. no. 22 (1850).

Angaladiana madagascariensis, Reichb. Handb. Scansoriæ, p. 285. no. 660, pl. 573. figs. 3902-4 (1854).

Nectarinia notata, Sharpe, P. Z. S. 1871, p. 317.

♂ *ad.* suprâ metallicè viridis, tectricibus minimis et medianis dorso concoloribus, versus marginem alarem chalybeis: tectricibus majoribus remigibusque indigotico nigricantibus, vix violascenti-bronzino limbatis: rectricibus cæruleo nigricantibus, bronzino-viridi angustè marginatis: mento gulâque metallicè viridibus, torque jugulari chalybeo: pectore cæruleo-nigro, subcaudalibus violascenti-bronzino terminatis: rostro pedibusque nigris: iride saturatè brunneâ.

♀ *ad.* suprâ brunnca: supercilio fulvescente: alis saturatè brunneis, pallidè brunneo limbatis: caudâ nigrâ, rectricibus paucis nigris albo terminaliter marginatis: subtus fulvenscens, plumis maculâ triangulari medianâ magnâ nigricante marmoratis: mento gulâque superiore concoloribus.

Hab. in insulâ "Madagascar" dictâ.

Adult Male. Upper parts metallic green, including the least and median series of wing-coverts, which become steel-blue towards the edge of the wing; greater series of coverts and the quills blue-black, the feathers occasionally slightly edged with violet-bronze, mostly so on the greater coverts; tail blue-black, the feathers partially edged with bronze-green; chin and throat metallic green, ending in a narrow steel-blue collar; breast, abdomen and under tail-coverts, and under surface of the wings blue-

black; under tail-coverts more or less tipped with violet-bronze; bill and legs black; irides dark brown. Total length 5·6 inches, culmen 1·2, wing 2·75, tail 1·9, tarsus 0·7.

Adult Female. Upper parts brown; feathers of the forehead and crown with dark centres; wings dark brown, with pale brown edges to the feathers; tail black, a few of the outer feathers with narrow white terminal margins; sides of the head brown, with a white eyebrow; underparts buff, the feathers of the throat, chest, and flanks with large triangular dusky black centres; chin and central portion of upper throat entirely buff; under wing-coverts and inner edges of the quills white, the former tinted with yellow; bill and legs black; irides dark brown. Total length 5·5 inches, culmen 1·1, wing 2·6, tail 1·9, tarsus 0·7.

Immature Male. Similar to adult female, but with the eyebrow barely perceptible, and the chin and central portions of the upper throat dusky black.

HAB. Madagascar.

THIS fine species, which is confined to the island of Madagascar, is in form and size most nearly allied to *C. superbus*. The following characters distinguish it from all the other members of this family—viz. the upper parts rich metallic green, entire breast black, with no pectoral tufts.

Though not so common as *C. souimanga*, it appears to be generally distributed, at least along the east coast of Madagascar; but according to Mr. E. Newton (*Ibis*, 1863, p. 342), “at Fenerive only it appears tolerably common.” In a previous visit to that island he and Mr. Roch first observed it at Manubonitra on the 7th of October. “Its chirp,” they write, “is exactly like a Tree-Sparrow’s, and when first heard it was taken for a bird of that genus; its song is moderate.” They give its native name as “Schonwee,” while according to Dr. Meller (*P. Z. S.* 1863, p. 162) it is also called “Sushuc,” and by the older French writers it was called “Angala-dian.”

It has been recorded by Quoy and Gaimard from the small island of St^e Marie, by Schlegel from Nossi-bé. Mr. Crossley has sent several skins from Saralalan, where it was apparently plentiful.

So little has been noted respecting this species, that we know next to nothing concerning its habits; yet so closely allied are all the members of this family that we may fairly conclude that, like the species with which we are better acquainted, it constructs a pendent purse-shaped nest, although Mr. Adanson many years ago described it as in the form of a cup (cf. *Less. Man. d’Orn.* ii. p. 25).



CINNYRIS SUPERBUS.

(SUPERB SUN-BIRD.)

Le Sougnimbindou, Aud. et Vieill. Ois. Dor. ii. p. 44, pl. 22 (1802).

Certhia superba, Shaw, Gen. Zool. viii. p. 193 (1811); id. Nat. Misc. xx. p. 316, p. 865 (1847).

Certhia sugnimbindu, Bechst. Kurze Uebers. p. 193. no. 80 (1812).

Cinnyris superbus, Cuv. Règn. Anim. i. p. 412 (1817); Vieill. N. Dict. d'Hist. Nat. xxxi. p. 512, pl. 20. fig. 3 (1819); Bonn. et Vieill. Enc. Méth. ii. p. 597 (1823); Bp. Consp. Av. i. p. 408. no. 34 (1850).

Violet-throated Creeper, Lath. Gen. Hist. B. iv. p. 257. no. 58 (1822).

Cinnyris sugnimbindou, Less. Man. d'Orn. ii. p. 48 (1828).

Cinnyris sanguineus, Less. Traité d'Orn. p. 296. no. 18 (1831); Pucheran, Rev. et Mag. Zool. 1853, p. 487.

Nectarinia superba, Jard. Monogr. Sun-birds, p. 275 (1843); Gray, Gen. B. i. p. 97 (1847); Strickl. Contr. Orn. 1851, p. 133; Verr. Rev. et Mag. Zool. 1851, p. 316; Hartl. J. f. O. 1854, p. 13. no. 122; Müll. J. f. O. 1855, p. 16. no. 182; Verr. Rev. et Mag. Zool. 1855. p. 511; Hartl. Orn. Westafr. p. 45. no. 127 (1857); Cass. Pr. Philad. Acad. 1859, p. 37; Gray, Hand-l. B. i. p. 107. no. 1313 (1869); Sharpe, Ibis, 1870, p. 52; id. P. Z. S. 1871. pp. 133, 609, 615; id. Cat. Afr. B. p. 38. no. 355 (1871); Shelley & Buckley, Ibis, 1872, p. 287; Ussher, Ibis, 1874, p. 59; Reichenow, J. f. O. 1875, p. 31; Bouvier, Cat. Ois. Marche &c. p. 13.

Chromatophora superba, Reichb. Handb. Scansoriæ, p. 283. no. 656, pl. 569. fig. 3878 (1851).

♂ *ad.* suprà metallicè aurato-viridis, tectricibus alarum minimis et medianis dorso concoloribus: tectricibus majoribus remigibusque nigris, metallicè viridi limbatis: capite summo saturatè metallicè smaragdineo: gulâ et præpectore chalybeis, mento violaceo nitente: pectore saturatè coccineo: abdomine, hypochondriis et subcaudalibus nigris, his sæpiùs rubro latè terminatis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* suprà sordidè olivacea: alis saturatè brunneis, plumis olivaceo limbatis: rectricibus saturatè brunneis angustè olivaceo marginatis et albido terminatis: supercilio, genis et regione paroticâ fulvis: subtùs pallidè flavicans olivaceo tincta, subcaudalibus aurantiaco-flavis.

Hab. in Africâ occidentali.

Adult Male. Upper parts metallic golden-green, including the least and median series of wing-coverts; greater series of coverts and the quills brownish black; tail black, the feathers narrowly edged with metallic green; forehead and crown deep metallic emerald-green, with a few of the feathers towards the edges occasionally with subterminal metallic orange and red bars; a black patch in front of the eyes; cheeks and ear-coverts bronzy green with copper and violet reflections; throat and crop steel-blue, glossed with violet towards the chin; breast dark glossy red; abdomen, flanks, and under tail-

coverts black, the latter often more or less broadly tipped with deep red ; under surface of the wings black ; bill and legs black ; irides dark brown. Total length 5·5 inches, culmen 1·2, wing 2·8, tail 2·0, tarsus 0·75.

Adult Female. Upper parts deep olive, shaded with yellow on the tail-coverts ; wings dark brown, the coverts edged with olive, the quills more narrowly so with olive-yellow ; tail dark brown, the feathers with partial olive-yellow edges and with pale ends, broadest on the outer ones ; a black patch in front of the eye ; eyebrow, cheeks, and ear-coverts pale yellow ; underparts uniform pale yellow, tinted with olive ; under tail-coverts orange-yellow ; under wing-coverts and inner margins of the quills white, the former tinted with yellow ; bill and legs black ; irides dark brown. Total length 5·5 inches, culmen 1·15, wing 2·8, tail 2·0, tarsus 0·75.

HAB. West Africa, from Senegal to Angola.

IN West Africa there are two closely allied forms, the present species and *C. johannæ*, distinguished from all the other members of the "dark metallic group" by their red breasts. Their true position appears to be between *C. notatus*, of Madagascar, and *C. splendidus*, of West Africa. The present bird is distinguished from *C. johannæ* by the colour of the crown, throat, and breast as well as by the absence of yellow pectoral tufts.

It appears to be fairly plentiful in West Africa, from the Gold Coast to Angola ; and I think it probable that it ranges commonly as far as Sierra Leone, although I only know of one instance of its capture to the north-west beyond the boundaries of Fantee ; that is, its occurrence in Senegal, which rests on M. Bouvier's sole authority, as he states that Marche procured it on the Cape-Verd peninsula.

In Fantee it was first met with by Governor Ussher, at Abrobonko, about six miles inland from Cape-coast Castle, but the greater number of his specimens were sent to him from the little-known forests of Denkera, further in the interior. In fact, I do not think it ever actually comes down to the coast, as near the shore all the large flowering trees have been cut for timber. At Enimil Mr. Blissett has procured it ; and in the lofty forests of the Aguapim mountains Mr. Buckley and I had frequent opportunities of observing this beautiful bird. In this district in February it was very abundant, assembled in company with many other species in the higher branches of some of the lofty trees, which at that season were one mass of blossoms. At times they twinkled like stars as the sunbeams glanced off their rich metallic plumage while they clung to the sweet-scented flowers and revelled in the profusion of this rich banquet spread for them by nature throughout the magnificent forests. It is essentially a woodland species, to be met with only in the forests of large trees ; and in this respect it differs somewhat from *C. splendidus*, which also frequents the more scattered trees and bushes, and is not uncommonly seen on the plains of Accra, where the shrubs are dispersed at intervals.

In Mr. Sharpe's cabinet I have examined specimens from the Cameroon Mountains (*Crossley*), from Gaboon (*Du Chaillu*), from Angola (*Hamilton*), and in Lord Walden's collection from the Moonda river (*Du Chaillu*). It has also been recorded by Cassin (Pr. Philad. Acad. 1859, p. 37) as collected by Du Chaillu on the Muni river, and by Audebert and Vieillot as forming part of Perrein's Malimba collection. It was also contained in a recent consignment received by M. A. Bouvier from his correspondent M. Petit at Londana, in the Loango district.



CINNYRIS JOHANNÆ

(CRIMSON-CHESTED SUPERB SUN-BIRD.)

Cinnyris johannæ, Verr. Rev. et Mag. Zool. 1851, p. 314; Reichb. Handb. Scansoriæ, p. 290. no. 674 (1854).

Nectarinia johannæ, Strickl. Contr. Orn. 1851, p. 134; Hartl. J. f. O. 1854, p. 13. no. 123; Müll. J. f. O. 1855, p. 16. no. 173; Hartl. Orn. Westafr. p. 45. no. 128 (1857); Cass. Pr. Philad. Acad. 1859, p. 37; Gray, Hand-l. B. i. p. 106. no. 1291 (1869); Sharpe, Ibis, 1870, p. 478; id. Cat. Afr. B. p. 38. no. 356 (1871); Shelley & Buckley, Ibis, 1872, p. 287; Ussher, Ibis, 1874, p. 59; Bouvier, Cat. Ois. Marche, &c. p. 13.

Nectarinia fasciata, Jard. & Fraser, Contr. Orn. 1852, p. 59; Hartl. J. f. O. 1854, p. 12. no. 119; Müll. J. f. O. 1855, p. 16. no. 172; Hartl. Orn. Westafr. p. 47. no. 132 (1857).

Cinnyris fasciata, Reichb. Handb. Scansoriæ, p. 289. no. 671 (1854).

♂ *ad.* similis *C. superbo*, sed pileo colloque metallicè viridibus dorso concoloribus, torque gutturali latâ metallicè violaccâ, pectore dilutiore et lætiùs coccineo, hujus plumis anticis metallicè violaceo angustè fasciatis, distinguendus.

♀ *ad.* similis fœminæ *C. superbi*, sed subtùs saturatè brunneo striata, et subcaudalibus pectore concoloribus.

Hab. in Africâ occidentali.

Adult Male. Upper parts metallic green, including the least and median series of wing-coverts; greater series of coverts and the quills brownish black; tail black, the feathers narrowly edged with metallic green; sides of the head, chin, and throat metallic green, with a broad violet-shaded steel-blue collar on the crop; chest bright blood-red, the feathers on the front half narrowly barred with metallic violet; pectoral tufts sulphur-yellow; flanks, abdomen, and under tail-coverts black; bill and legs black; irides dark brown. Total length 5·3 inches, culmen 1·2, wing 2·5, tail 1·6, tarsus 0·65.

Adult Female. Upper parts deep olive-brown; a distinct buff eyebrow; wings dark brown, the feathers edged with olive-brown; tail black, the feathers edged with olive and with pale ends, broadest on the outer ones; underparts, including the lower portion of the cheek and ear-coverts, white, shaded with pale yellow, most strongly so on the breast, abdomen, and under tail-coverts; throat streaked, the chest and under tail-coverts more broadly, with deep olivaceous brown centres to the feathers; under wing-coverts and inner margins of the quills white, the former partially streaked with brown and tinted with yellow; bill and legs black; irides dark brown. Total length 4·5 inches, culmen 1·1, wing 2·5, tail 1·4, tarsus 0·65.

HAB. West Africa, from Sierra Leone to Gaboon.

THE present species is closely allied to *C. superbus*, from which the male may be distinguished by having the crown and throat uniform metallic green, like the back, by the brighter red breast, and by the pale sulphur-yellow pectoral tufts. The female is distinguished by the striped breast, and by the under tail-coverts not being orange-yellow.

This lovely bird is one of the most striking of all this richly coloured family. It is a native of tropical West Africa, where it ranges from Sierra Leone to the Gaboon; at the former place it was collected by Mr. Bourcier, whose collection was unfortunately lost in its transmission to America (Jard. Contr. Orn. 1852, p. 59). Mr. Ussher sent a few specimens home from Fantee, and observes (Ibis, 1874, p. 59):—"This beautiful Sun-bird is of very rare occurrence on the Gold Coast; and I do not recollect having seen more than three specimens during my stay of many years. Those which I obtained have been from the interior." I may therefore consider that I was most fortunate when, in company with Mr. Buckley, I procured six specimens in a very short time at Abouri during our travels in the Aguapim mountains, where the dense forest and the gigantic overspreading trees sheltered us from the scorching rays of the tropical sun, and where the fresh breeze from the wide-spreading plains of Accra tempered the air impregnated with the sweet scents of the flowering trees: in this soft atmosphere, in these wild flowering woods, this lovely little bird takes up its abode, frequenting in company with many other species, especially *C. superbus*, the rich blossoms in the higher trees. They may be seen hanging from the twigs and flowers or darting about through the boughs, but usually at such a height that their colours cannot be detected, except when a few rays of light glance at intervals off their plumes.

It was towards the end of February that we met with them, at which time of year comparatively few of the Sun-birds had attained their full plumage; and they all appeared to be on the most friendly terms, displaying none of those fits of jealousy which Sun-birds, as a rule, are so wont to exhibit during the nuptial season.

We never met with this bird except at Abouri, about thirty miles inland from Accra; and as Mr. Ussher's knowledge of it was derived from specimens procured by his collector from the forests of Denkera, we may presume that it is an inland species, restricted to the denser forests of large trees; and this would well account for its great scarcity in collections, so little as yet being known of those regions.

At Abomey, in Dahomey, it was collected by Mr. Fraser, whose specimens formed the types of *Nectarinia fasciata*, Jard.; and from the Gaboon came M. J. Verreaux's types of *C. johanna*. It has also been collected on the Moonda river by DuChaillu (Pr. Philad. Acad. 1859, p. 37).



CINNYRIS SPLENDIDUS.

(WEST-AFRICAN SPLENDID SUN-BIRD.)

- ? *Crimson-bellied Creeper*, Lath. Gen. Syn. Suppl. ii, p. 164, no. 18 (1801); id. Gen. Hist. B. iv, p. 246, no. 39 (1822).
- ? *Certhia coccinigastra*, Lath. Ind. Orn. Suppl. p. 35, no. 1 (1801); Shaw, Gen. Zool. viii, p. 216 (1811).
- L'Eclatant*, Aud. et Vieill. Ois. Dor. ii, p. 15, pl. 2 (1802).
- Le Soui-mangu à plumes soyeuses*, Aud. et Vieill. tom. cit. p. 119, pl. 82.
- Sucrier éblouissant*, Levaill. Ois. d'Afr. vi, p. 163, pl. 295, fig. 1 (1808); Sundev. Crit. om Levaill. p. 57 (1857).
- Certhia splendida*, Shaw, Gen. Zool. viii, p. 191, pl. 26 (1811).
- Certhia nitida*, Bechst. Kurze Uebers. p. 191, no. 76 (1812).
- Certhia sericea*, Bechst. tom. cit. p. 194, no. 86.
- Cinnyris splendidus*, Cuv. Règne Anim. i, p. 412 (1817); Vieill. N. Dict. d'Hist. Nat. xxxi, p. 500 (1819); Bonn. et Vieill. Enc. Méth. ii, p. 587 (1823); Less. Man. d'Orn. ii, p. 41 (1828); Swains. B. W. Afr. ii, p. 125 (1837); Bp. Consp. Av. i, p. 408, no. 36 (1850); Cab. Mus. Hein. i, p. 101, no. 553 (1850); Reichb. Handb. Scansoriæ. p. 287, no. 664, pl. 574, figs. 3908-9 (1854).
- Cinnyris splendens*, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 501 (1819); Less. Man. d'Orn. ii, p. 41 (1828); Reichb. Handb. Scansoriæ, p. 290, no. 673, pl. 576, fig. 3925 (1854).
- Cinnyris bombicinus*, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 509 (1819); Bonn. et Vieill. Enc. Méth. ii, p. 596 (1823); Less. Man. d'Orn. ii, p. 53 (1828).
- ? *Cinnyris coccinigaster*, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 515 (1819); Bonn. et Vieill. Enc. Méth. ii, p. 588 (1823); Less. Man. d'Orn. ii, p. 55 (1828).
- Blue-rumped Creeper*, var. *c*, Lath. Gen. Hist. B. iv, p. 240, no. 28c (1822).
- Glossy Creeper*, Lath. tom. cit. p. 253, no. 50.
- Nectarinia splendida*, Drapiez, Dict. Class. xv, p. 511 (1829); Jard. Monogr. Sun-birds, pp 176, 250, pl. 5 (1842); Pucheran, Rev. et Mag. Zool. 1853, p. 486; Hartl. J. f. O. 1854, p. 13, no. 125; Müll. J. f. O. 1855, p. 13, no. 134; Hartl. tom. cit. p. 360; id. Orn. W.-Afr. p. 46, no. 130 (1857); id. J. f. O. 1861, p. 108; Dohrn, P. Z. S. 1866, p. 331; Layard, B. S. Afr. p. 82, no. 138 (1867); Gray, Hand-l. B. i, p. 106, no. 1279 (1869); Sharpe, Ibis, 1869, p. 188; id. Cat. Afr. B. p. 38, no. 357 (1871); Shelley & Buckley, Ibis, 1872, p. 287; Reichenow, J. f. O. 1873, p. 217; Ussher, Ibis, 1874, p. 59; Reichenow, J. f. O. 1875, p. 30; Bouvier, Cat. Ois. Marche, p. 13 (1875).
- Cinnyris lucidus*, Less. Traité d'Orn. i, p. 295, no. 17 (1831); Pucheran, Rev. et Mag. Zool. 1853, p. 486; Hartl. J. f. O. 1855, p. 423.
- Nectarinia nitida*, Nordm. in Erm. Reise um die Erde, Atlas, p. 6 (1835); Licht. Nomencl. Av. p. 55 (1854).

! *Nectarinia coccinigaster*, Gray, Gen. B. i, p. 98 (1847).

Nectarinia splendens, Schl. Handl. Dierk. p. 236 (1857).

♂ *ad.* suprà splendidè metallicè viridis, collo postico et interscapulio saturatiùs viridibus vix chalybescentibus : tectricibus alarum minimis et medianis dorso concoloribus : majoribus remigibusque nigris sub certâ luce viridescenti lavatis : supracaudalibus longissimis chalybeo-viridibus : rectricibus nigris metallicè viridi marginatis : pileo summo et gutture metallicè violaceis, facie laterali chalybeo lavatâ : colli lateribus metallicè viridibus : pectore scarlatino, plumis chalybeo marginatis, imis latiùs chalybeis : corpore reliquo subtùs nigro : subcaudalibus chalybeo-viridibus : fasciis subalaribus pallidè sulfureis : subalaribus nigris, margine alari viridi : remigibus infrà indigotico-nigris : rostro et pedibus nigris : iride saturatè brunneâ.

♀ *ad.* suprà flavicanti-olivascens : tectricibus alarum brunneis olivaceo marginatis, majoribus et secundariis intimis angustè albido terminatis : remigibus brunneis, extùs olivascenti-flavo limbatis : rectricibus nigris albido angustè terminatis : plumis antocularibus fusciscentibus : supercilio indistincto flavido : regione paroticiâ olivascens : genis et corpore reliquo subtùs flavis, pectoris plumis et hypochondriis basaliter brunneis quasi marmoratis : subalaribus albicantioribus vix flavido lavatis et basaliter brunneis.

Hab. in Africâ occidentali.

Adult Male. Upper parts rich metallic green, with a blue gloss towards the back of the neck and upper tail-coverts, and with a golden shade on the centre of the back ; entire head and throat metallic violet, gradually shading into green on the sides and back of the neck ; wings and tail black, with a green gloss ; the least and median series of wing-coverts metallic green, and the tail-feathers edged with that colour ; underparts black ; chin, throat, and front of the chest metallic violet ; the feathers of the front of the chest are edged with scarlet, and form a broad pectoral band of that colour shot with metallic violet ; pectoral tufts pale sulphur-yellow ; under tail-coverts metallic green, glossed with blue ; under surface of the wings black, with the marginal coverts partially edged with metallic green ; bill and legs black ; irides dark brown. Total length 5 inches, culmen 0·95, wing 2·7, tail 1·7, tarsus 0·65.

Adult Female. Upper parts ashy olive ; sides of the head the same colour, but slightly darker in front of the eyes ; a broad buff eyebrow ; wings dark brown, with the edges of all the feathers pale brown, shaded with olive on the least and median series of wing-coverts, and on the secondaries ; tail-feathers brownish black, glossed with green, partially edged with olive and with narrow white tips ; underparts yellowish buff, palest towards the chin, and slightly shaded with olive on the flanks ; lower portion of the throat and the front and sides of the chest obscurely mottled by the olive-brown centres of the feathers ; under tail-coverts with large triangular brown centres ; under surface of the wings brown, with the inner margins of the quills and the coverts white, the latter partially shaded with buff ; bill and legs black ; irides dark brown. Total length 4·9 inches, culmen 0·85, wing 2·55, tail 1·7, tarsus 0·65.

Young Male. Very similar in plumage to the female, but with the chin and the greater portion of the throat black.

Male in partial moult. Very similar to the female, but slightly browner ; no eyebrow ; a few metallic feathers on the head and wing-coverts ; only a few of the outer tail-feathers tipped with white ; entire chin and throat rich metallic violet, and a few of the feathers on the front of the chest tipped with scarlet.

HAB. West Africa.

THIS brilliantly coloured Sun-bird is the type of the genus *Cinnyris*, and belongs to the "dark metallic" group. Its nearest ally is *C. habessinicus*; but it is readily distinguished from that bird by the violet instead of green throat.

It is entirely confined to the West-African region, ranging from Senegal to the Congo. The assertion made by Levaillant that it inhabits Great Namaqua Land and builds in decayed trunks of trees is fallacious; and we are assured by Dr. Dohrn that Erman also committed an error in recording this species as found on Prince's Island.

In the northern portion of its range it has been collected by Marche at Ruffisque, Mboa, and Daranka, on the peninsula of Cape Verd, and at Sierra Leone. We have also examined specimens from Senegal, Gambia, Casamanze, and Bissao, on the Gold Coast from Wassaw, Cape-Coast Castle, Abrobonko, Accra, Aguapim, and the river Volta. From the Camaroons it has been recorded by Reichenow; Du Chaillu collected it in the Gaboon; and, according to Hartlaub, there is a specimen from the Congo in the Berlin Museum.

On the Gold Coast it is the commonest species of Sun-bird, and was met with by myself and Mr. Buckley very evenly distributed throughout the open country in the neighbourhood of Accra and the forest districts of Aguapim and Abrobonko. In the forests scores might be seen flitting around the blossoms of the large flowering-trees in company with many other species. They were also common, though generally in pairs, about the cocoanut-trees at Cape-Coast Castle and the small bushes on the arid plains of Accra. At a short distance the males generally appear entirely black; for as they mostly frequent the higher boughs, the reflections from their unrivalled plumage rarely catch the eye. In February and March about half the specimens we met with were in full plumage, and, I presume, would in another month's time commence breeding; but we are not acquainted with the nest and eggs of this species.

Mr. Ussher writes:—"This beautiful little bird is widely distributed on the Gold Coast. There are very few places where the active little creature cannot be observed sitting on flowering-shrubs and succulent plants. He generally selects some middling-sized shrub or bush for his nest; and he appears exceedingly attentive to the female during incubation.

"At certain seasons of the year (about the months of December and January) great numbers can be observed flitting over the huge tulip-shaped scarlet flowers of a species of *Bombax*, which is of frequent occurrence in the open spaces of the forests of Fantee, the trees being at this time entirely denuded of foliage; so that the birds can easily be obtained by collectors, although in the upper branches they are almost invisible from their small size and quick movements. At this period they appear to associate freely with other birds; and from two trees in the neighbourhood of Cape Coast I have obtained specimens of *N. splendida*, *N. superba*, *N. adelberti*, *N. chloropygia*, *N. subcollaris*, *N. cyanocephala*, *N. cyanolæma*, and *N. cuprea*, &c. &c. After each shot they mostly plunged down *en masse* into the low bushes, but returned almost immediately to their feeding-grounds. The beauty of the plumage of *N. splendida* and *N. superba* can only be understood by those who have seen them while alive or immediately after death, as the colours soon become dull."

The specimens here figured and described were collected by myself in Fantee.



PHYLLOSCOPUS HABBESSINICUS

CINNYRIS HABESSINICUS.

(ABYSSINIAN SPLENDID SUN-BIRD.)

Nectarinia habessinica, Hempr. & Ehr. Symb. Phys. Zool. i, Aves, pl. 4 (1828); Müll. J. f. O. 1855, p. 15, no. 156; Blyth, J. A. S. B. xxiv, p. 303 (1855); Heugl. Ibis, 1859, p. 340; Speke, Ibis, 1860, p. 247; Heugl. Faun. Roth. Meer. p. 21 (1861); id. J. f. O. 1864, p. 262; Finsch, Trans. Zool. S. vii, p. 229 (1869); Finsch & Hartl. Vög. Ost-Afr. p. 221 (1870); Blanf. Geol. & Zool. Abyss. p. 351 (1870); Sharpe, Cat. Afr. B. p. 38 (1871); Heugl. Orn. N.O.-Afr. p. 229 (1871).

Nectarinia purpurata, Kittl. Kupf. Nat. Vög. p. 22, pl. 28, fig. 1 (1833); Gray, Gen. B. i, p. 98, no. 36 (1847); Müll. J. f. O. 1855, p. 15, no. 166; Heugl. J. f. O. 1864, p. 262.

Cinnyris gularis, Rüpp. Neue Wirb. p. 88, pl. 31, fig. 2 (1835); Ferr. et Gal. Voy. Abyss. iii, p. 248 (1847); Bp. Consp. Av. i, p. 406, no. 15 (1850); Reichb. Handb. Scansoriæ, p. 291, no. 677, pl. 577, fig. 3931 (1854).

Cinnyris abyssinica, Rüpp. Neue Wirb. p. 90 (1835).

Nectarinia habessinica, Rüpp. Syst. Uebers. p. 28 (1845); Heugl. Syst. Uebers. p. 20 (1856); Brchm, Reise Habesch, pp. 211, 284 (1863).

? *Soui-manga à collier*, Lefebvre, Voy. Abyss. Ois. p. 88 (1845-50).

Nectarinia gularis, Gray, Gen. B. i, p. 98, no. 32 (1847); Müll. J. f. O. 1855, p. 14, no. 155; Heugl. Syst. Uebers. p. 20 (1856); id. J. f. O. 1864, p. 262.

Nectarinia abyssinica, Gray, Gen. B. i, p. 98, no. 34 (1847); Sclat. & Strickl. Contr. Orn. 1852, p. 124.

Cinnyris abyssinicus, Ferr. et Gal. Voy. Abyss. iii, p. 248 (1847); Horsf. & Moore, Cat. B. E.I. Co. Mus. ii, p. 736 (1856); Antin. & Salvad. Ann. Mus. Civic. Genova, iv, p. 451 (1873).

Cinnyris habessinicus, Bp. Consp. Av. i, p. 406, no. 14 (1850); Cab. Mus. Hein. i, p. 101 (1850); Reichb. Handb. Scansoriæ, p. 288, no. 665, pl. 574, figs. 3910-12 (1854).

Cinnyris purpuratus, Bp. Consp. Av. i, p. 406, no. 17 (1850); Reichb. Handb. Scansoriæ, p. 290, no. 672, pl. 576, fig. 3924 (1854).

Cinnyris habessinicus, Bp. Comptes Rendus, 1854, p. 265.

Nectarinia lucida, Licht. Nomencl. Av. p. 55 (1854); Heugl. J. f. O. 1864, p. 262.

Nectarinia habessinica, Gray, Hand-l. B. i, p. 106, no. 1280 (1869).

ad. supra metallicè aurato-viridis, vix violascens, supracaudalibus magis viridibus purpureo variis: caudâ nigrâ: tectricibus alarum dorso concoloribus: majoribus et remigibus nigris vix indigotico nitentibus: fronte et sincipite metallicè violaceis: facie laterali et gutture toto aurato-viridibus, plumis præpectoralibus violaceo limbatis: pectore lætè scarlatino, plumis inferioribus infra viridi vel violaceo marginatis: corpore reliquo subtùs velutino-nigro: fasciis pectoralibus lætè sulfurcis: subalaribus nigris, margine alari viridi: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad. mari dissimilis: suprâ cinerascens, supracaudalibus saturatiùs brunneis: tectricibus alarum minimis dorso concoloribus, reliquis brunneis angustè dorsi colore limbatis: caudâ nigrâ: fasciâ superciliari pallidâ cinerascenti-albâ: plagâ parvâ anteorulari fuscâ: regione paroticâ cinerascente: genis gulâque albicantibus: corpore reliquo subtùs pallidè cineraceo, vix flavo lavato.*

Hab. in Africâ septentrionali-orientali.

Adult Male. Upper parts metallic green, strongly shaded with steel-blue and violet towards the upper tail-coverts; forehead and crown metallic violet; least and median series of wing-coverts metallic green partially shaded with violet-bronze; remainder of the wings and the tail black; a triangular patch of black feathers in front of the eye; remainder of the sides of the head and neck, as well as the entire throat, metallic green like the back, with a few feathers on the crop partially edged with metallic violet; across the front of the chest a broad band of rich scarlet, the feathers of which have narrow sub-terminal steel-blue bars; remainder of the breast, under tail-coverts, and under surface of the wings black, with a few of the feathers, next to the scarlet breast-band, broadly edged with metallic violet and green; pectoral tufts bright sulphur-yellow; bill and legs black; irides dark brown. Total length 5 inches, culmen 0·85, wing 2·5, tail 1·9, tarsus 0·65.

Adult Female. Upper parts pale ashy brown; a broad buff eyebrow, and a narrow brown band in front of the eye; wings brown, with pale edges to all the feathers; tail black; underparts very pale ashy brown, becoming almost white towards the chin; under tail-coverts brown, with broad white edges; under surface of the wings brown, with the inner margins of the quills and the coverts white; bill and legs black; irides dark brown. Total length 4·7 inches, culmen 0·75, wing 2·25, tail 1·7, tarsus 0·6.

HAB. North-east Africa.

This species belongs to that portion of the "dark metallic" group or typical *Cinnyris*, in which the upper parts as well as the entire head and neck are of metallic colours, and the abdomen is black.

Like *C. splendidus* it possesses pale yellow pectoral tufts, but is distinguished from that species by the throat being green instead of violet.

It inhabits Kordofan and the country to the east of the Nile valley from Taka, or about 16° N. lat., southward into the Somali country.

In Kordofan Rüppell procured two specimens in February and March about the "Asclepia" bushes. They were in imperfect plumage, and formed the types of his *Cinnyris gularis*; he also met with the full-plumaged birds common along the Abyssinian coast.

Von Heuglin collected it in the province of Taka, in Upper Nubia, and in the Danakil country, on the Red Sea, from the peninsula of Buri to the Gulf of Tadjurrah; and he records it from the mountainous districts of Eastern Abyssinia up to an elevation of 12,000 feet above the sea.

In the neighbourhood of the Massowah district Hemprich and Ehrenberg collected their type specimens at Arkiko and Ailet. Mr. Jesse procured it at Sahati, and during his journey inland met with it at Rairo, and on the Anseba at Maragaz and Waliko. He also procured it at Koomaylee, near Annesley Bay. Out of the nine specimens he brought home, Dr. Finsch observes:—"The steel-blue lustre on the rump is visible only in a few specimens; most of them have the rump of the same metallic green as the other parts of the body."

Antinori, Beccari, and Issel during their travels in North-eastern Africa collected specimens in Bogos in February, May, June, October, and November on the Anseba river, or at Keren and Scifscift, and in December at Monkullo, a village on the coast close to Massowah. They found it in the same localities as *C. cruentatus*, but not in company with that species. They further inform us that it remains in Bogos the greater part of the year, but shifts from the lower valleys to the more elevated and cooler regions during the months of July and August.

In October, according to Rüppell, they have assumed their full breeding-plumage, and may be heard singing frequently and loudly.

This species is, writes Mr. Blanford, "very common near the coast and up to about 4000 feet above the sea, in the passes leading to the highlands. In January and February many birds were in the plumage described by Rüppell as *C. gularis*. Others, however, were in full plumage; and it is not quite clear whether the *gularis* plumage is assumed by all males after the breeding-season, or whether it is only the livery of the first year. I am strongly inclined to the latter opinion. The nest figured by Ehrenberg, and one which I also found, is very similar to that of *Nectarinia asiatica*. That *N. gularis* is identical with *N. habessinica* cannot, I think, admit of a doubt. I only saw the former in places where the latter also occurred. I shot two or three specimens when trying to obtain females (more difficult to see and procure than the males); and one specimen which I shot was moulting and in intermediate plumage."

It has further been recorded by Brehm as of rare occurrence at Samchara; and a bird referred to this species was collected by Lefebvre at Adoua and Meyegonagona; but as the specimens were in imperfect plumage, and were stated to be smaller than *C. affinis*, we cannot look upon the determination as positively correct.

In the Somali country it has been collected by Captain Speke, and appears to be common there.

The specimens which I have here figured and described were collected at Ailet by Mr. Esler, and are in my own collection.



CINNYRIS OSIRIS.

(ABYSSINIAN BIFASCIATED SUN-BIRD.)

Nectarinia jardinei, Blanf. (nec Verr.) Geol. & Zool. Abyss. p. 352 (1870); Heugl. Orn. N.O.-Afr. p. 227 (1871); Finsch, Tr. Zool. Soc. vii. pp. 230, 314 (1872).
Nectarinia osiris, Finsch, tom. cit. p. 230.

♂ *ad. intermedius*: *C. bifasciata* similis et vix minor: fronte et vertice magis smaragdineis, gulâ magis cuprescente distinguendus.

♀ *ad.* mihi ignota: sed sine dubio ut in speciebus affinibus à *marc* diversa.

Hab. in Abyssiniâ.

Adult Male. Similar in plumage to *C. bifasciata*; but with the forehead and crown slightly more emerald-green, and with a strong copper-shade on the throat. Entire length 5.1 inches, culmen 0.65, wing 2.6, tail 2.0, tarsus 0.65.

HAB. North-east Africa: Abyssinia and Bogos Land.

DR. FINSCH named this species after Osiris, the chief god in Egyptian mythology; and, like him, it appears to have concealed its identity for a time in another better-known form; for it is so closely allied to *C. bifasciata* that the learned doctor still retained it under *N. jardinei*, although he pointed out some differential characters and suggested *Nectarinia osiris* for its provisional name. "The discovery of this species," he writes (*l. c.*), "which was only known from West and East Africa, is a very interesting contribution to the avifauna of North-east Africa. A careful comparison with specimens from Angola and Zanzibar show not the slightest difference in coloration, but a considerably larger size. I hesitate to make a new species upon this character alone, fearing that a larger series would perhaps offer forms intermediate in size, which would not permit the two species to be distinguished with certainty. If further researches prove that the differences in size are permanent, I propose to call the North-eastern form *Nectarinia osiris*." He then gives the following notes from Mr. Jesse:—"Two specimens, both males, procured at Senafé, were all I ever saw in Abyssinia or Bogos. These were killed in a valley some 1200 feet below Senafé, on the western side." In a further passage in the same volume, Dr. Finsch writes:—"Von Heuglin never met with this species, and enumerates it in his work (Orn. N.O.-Afr. p. 227) only as having been informed of its occurrence privately by myself." Mr. Blanford observes (Geol. & Zool. Abyss. p. 352), "I am indebted for a specimen of this Sun-bird to Captain Sturt. I did not myself meet with it. The specimen given to me was shot at an elevation of between 5000 and 6000 feet, below Senafé, as was another obtained by Mr. Jesse."

I find, from the examination of four adult males which are in the collection of the Viscount Walden and Mr. Sharpe (one procured by Mr. Esler in Bogos, and the others by Mr. Jesse from

Undel Wells and Senafé), that the dimensions of this bird are constant and larger than in *C. bifasciata*, rivalling the South-African *C. mariguensis* in size, but with a shorter bill and tarsus. Neither Dr. Finsch nor Von Heuglin remarks the strong copper gloss on the throat, or the emerald-green shade on the forehead, the latter being very distinct and characteristic of the species.

CINNYRIS ERYTHROCERUS.

(LONG-TAILED BIFASCIATED SUN-BIRD.)

Nectarinia erythrocerca, Heugl. Syst. Uebers. Vög. N.O.-Afr. p. 20 (1856); Hartl. Orn. W.-Afr. p. 270 (1857); Gray, Hand-l. B. i, p. 107, no. 1294 (1869).

Nectarinia erythroceria, Heugl. J. f. O. 1864, p. 261; id. Reise Weissen Nil, p. 337 (1869); Finsch & Hartl. Vög. Ost-Afr. pp. 219, 861, pl. 2, fig. 2 (1870); Heugl. Orn. N.O.-Afr. p. 226 (1871).

Nectarinia gonzenbachii, Antin. Cat. Descript. Ucc. p. 35 (1864); Hartm. J. f. O. 1866, p. 235; Bianconi, Spec. Zool. Mosamb. p. 320 (1867); Heugl. J. f. O. 1867, p. 202; Salvad. Atti R. Acc. Torino, 1870, p. 731.

♂ *ad.* suprâ metallicè viridis vix aurato-nitens: supracaudalibus metallicè chalybeis sub certâ luce violaceo nitentibus: tectricibus minimis et medianis dorso concoloribus: majoribus remigibusque nigris: rectricibus nigris metallicè viridi limbatis: plagâ parvâ triangulari ante oculos positâ nigrâ: facie laterali et gutture toto metallicè viridibus: torque præpectoralis metallicè violaceâ: pectore scarlatino, torquem alteram latam formante, plumis angustè subterminaliter violaceo fasciatis: corpore reliquo subtùs nigro, subcaudalibus metallicè violaceo lavatis: subalaribus nigris, margine alari metallicè chalybeo: rostro et pedibus nigris: iride saturatè brunneâ.

Hab. in regione Niloticâ superiore.

Adult Male. Entire head and neck, back, scapulars, and least and median series of wing-coverts metallic green, slightly glossed with blue on the back; upper tail-coverts steel-blue partially glossed with violet and green; in front of the eye a triangular patch of black feathers; remainder of the wings brownish black with a few of the greater coverts partially edged with metallic green; tail black, the feathers partially edged with metallic green; at the base of the metallic-green throat is a narrow metallic-violet collar, followed by a broad scarlet pectoral band, the feathers of which have narrow subterminal metallic-violet bars; remainder of the underparts brownish black; the under tail-coverts partially edged with metallic violet; bill and legs black; irides dark brown. Total length 5.2 inches, culmen 0.65, wing 2.4, tail 2, tarsus 0.6.

HAB. White-Nile district and Mozambique.

SINCE the illustration of this species was printed off I have seen a much finer specimen in the Turin Museum—the type of Antinori's *Nectarinia gonzenbachii*. This specimen measures—length 5.4 inches, culmen 0.65, wing 2.4, tail 2.6, tarsus 0.65. In this example the two centre tail-feathers are much longer than in the one we have above described and figured, so much so, that, were it not for the general structure and proportions of the other parts so nearly coinciding with the members of the present group, it might have deserved specific separation; but such a course does not appear to me to be necessary. The peculiar form of the two central tail-feathers, which rather suddenly narrow about halfway down, is a well-marked character of this species, which in

its colouring very nearly approaches *C. osiris* of Abyssinia and the better-known *C. bifasciatus* of West Africa. The steel-blue colour of the upper tail-coverts is, perhaps, the next most prominent feature in the present species.

Von Heuglin first discovered this bird near the Bahr-el-Abiad ; and, according to that gentleman, it is distributed throughout the Upper-White-Nile district, southward from 8° N. lat., and is not uncommon in the lowlands about the Gazelle River. It frequents the high trees in damp localities, and is especially fond of the beautiful flowers of the *Kigelia africana*. In winter he met with it at Bongo ; and in March, he informs us, the males begin to assume their breeding-plumage.

Signor Antinori also collected a specimen in the same locality in 8° N. lat., which we presume to be about its most northern limit ; yet too little is known of this species for us to define its range, especially as it has been recorded from the Mosambique district by Bianconi upon the authority of a specimen collected by Signor Fornasini.

This species has been called *erythrocerus* ; but this is evidently due to a misprint in the original description, as the bird is not red-tailed, but is red-breasted (κῆρ, the heart) ; and Heuglin, who intended to write *erythroceria*, meaning “red round the region of the heart.” took the first opportunity to correct the misprint.

The specimen here figured and described is from Mr. Sharpe's collection, now added to our national Museum. The lower figure in the illustration represents this bird in company with *C. osiris*, its nearest allied form.



CINNYRIS MARIQUENSIS.

(SOUTHERN BIFASCIATED SUN-BIRD.)

African Creeper, var. c, Lath. Gen. Syn. Suppl. p. 127. no. 18 c (1787).

Certhia afra, var. γ, Lath. Ind. Orn. i. p. 287. no. 18 γ (1790).

Cinnyris mariquensis, Smith, App. Rep. Exp. S. Afr. p. 53 (1836).

Nectarinia bifasciata, Jard. Monogr. Sun-birds, pp. 174, 250, pl. 4 (1843); Strickl. & Sel. Contr. Orn. 1852, p. 153; Hartl. J. f. O. 1854, p. 12. no. 118; Müll. J. f. O. 1855, p. 16. no. 181; Hartl. Orn. W. Afr. p. 46. no. 131 (1857); Layard, B. S. Afr. p. 77. no. 126 (1867); Chapman, Trav. S. Afr. App. p. 407 (1868); Gray, Hand-l. B. i. p. 106. no. 1283 (1869); Sharpe, Cat. Afr. B. p. 38. no. 359 (1871); Buckley, Ibis, 1874, p. 374.

Cinnyris bifasciatus, Reichb. Handb. Scansoriæ, p. 389. no. 670, pl. 576. figs. 3920-21 (1854); Ayres, Ibis, 1871, p. 150; Gurney in Anderss. B. Dam. Ld. p. 70 (1872).

♂ *ad.* suprâ metallicè viridis, cupreo nitens, capite et collo undique dorso concoloribus: torque jugulari metallicè chalybeo: torque altero pectorali rubro, plumis hujusce vix chalybeo marginatis: corpore reliquo subtùs, alis caudâque nigris.

♀ *ad.* suprâ cinerascens: plagâ anteculari nigrâ: supercilio albido: alis saturatè brunneis, pennis pallidiùs marginatis: caudâ nigrâ, rectricibus exterioribus albo terminatis: subtùs alba, pectore medio flavo lavato, juguli et præpectoris plumis, cum subcaudalibus, medialiter brunneo notatis: hypochondriis cinerascens lavatis.

Hab. in Africâ australi.

Adult Male. Upper parts metallic golden green, including the least and median series of wing-coverts; greater series and primaries black, with a brownish gloss; head, neck, scapulars, and lesser wing-coverts with a strong coppery gloss; upper tail-coverts deeper green; tail-feathers black with a brownish gloss, and partially edged with bronze; from the eye to the beak a patch like black velvet; remainder of the head, neck, and entire throat metallic green like the back, and narrowly margined on the crop with a steel-blue collar, followed by a broad band of deep red on the front of the chest, the feathers partially edged with steel-blue or green; remainder of the underparts black, including the under surface of the wings, where some of the outer coverts are edged with metallic green; bill and legs black; irides dark brown. Total length 5.1 inches, culmen 0.85, wing 2.7, tail 2.1, tarsus 0.7.

Adult Female. Above ashy brown; wings dark brown, the feathers edged with paler brown; upper tail-coverts black with broad pale brown ends; tail black with a greenish gloss; two outer feathers on each side tipped with white, the outermost ones most broadly so, and edged on their outer webs with that colour; sides of the head ashy brown, with a black patch from the eye to the beak, and a white eye-brow from above the eye to above the ear-coverts; under surface white, washed with pale yellow down the centre of the breast, and with large triangular brown centres to the feathers of the lower throat, upper chest, and under tail-coverts; sides of the body shaded with ashy brown; under surface of the quills brown, with white margins to their inner webs; under wing-coverts white, strongly mottled with

brown; beak and legs black; irides dark brown. Total length 4·8 inches, culmen 0·8, wing 2·5, tail 2, tarsus 0·7.

Young Male. Similar in plumage to adult female.

HAB. South Africa.

Obs. A specimen in Mr. Sharpe's collection from the Transvaal (*Ayres*), an adult male in full plumage, has the two centre tail-feathers 0·15 inch longer than the others. A specimen in the same collection from the "Zambesi (*Verreaux*)" has the culmen 0·9 inch in length.

THE present species is confined to South Africa. It is common in Ondonga and Damara Land, and southward to Cape colony, and across the interior from Lake Ngami to the Transvaal and the Zambesi, but it does not appear to frequent the actual coast of South-eastern Africa.

During my short visit to this coast I was never fortunate enough to meet with it, either during my excursions about Cape colony, or in my visits to Mossel Bay, Port Elizabeth, or Durban; and from the latter locality I have seen so many collections that I feel very positive that it does not occur there; but in the interior and the Transvaal it is certainly not uncommon. Mr. T. E. Buckley during his travels in South Africa obtained several specimens of this bird, and gives the following notes in a very interesting paper upon his journey in the Matabili country:—"Quite the commonest Sun-bird from north of Pretoria into the Matabili country. They were generally to be seen in pairs, or perhaps two cocks chasing a hen. Like all dark-coloured Sun-birds, the beautiful plumage of the male is only to be seen on a near approach. From the specimens I have in my collection it would appear that the male changes from the sober colours of the female into his own lovely hues in October. The habits of all Sun-birds seem to be similar, very lively and restless, rarely remaining long in one tree, unless attracted by an abundance of flowers, in which, no doubt, their food is to be found. The males are much shyer than the females. I did not observe this species in Natal."

In the Transvaal it has been found by Mr. Ayres, who remarks:—"This lovely little bird I first shot at some distance from the river Limpopo during July. I found several feeding amongst some aloes; but they were very shy and difficult to obtain. Flowers being at that season exceedingly scarce, they frequently hunted for small insects amongst the dry seed-tops of the high grass, hovering round the stems as a Humming-bird would do, and thus remaining stationary, but darting away immediately on my approach, so that I found it difficult to get within forty or fifty yards of them."

From the Zambesi district I have seen a specimen in Mr. Sharpe's cabinet; and it is worthy of note that in his fine collection there is another from the Transvaal with the two centre tail-feathers slightly elongated, being 0·15 inch longer than the others. This form of the tail I have also met with in an example of *C. cupreus* in the same collection, a peculiarity which I have not observed in any specimens belonging to the other groups of *Cinnyris*; and I consider that it points to this "dark metallic group," as I call it, of *Cinnyris* as being that most nearly allied to the genus *Nectarinia*.

This species penetrates throughout the central portions of South Africa; for both Mr. Chapman and Mr. Andersson speak of its frequenting the Lake-Ngami district, as well as Damara Land,

The specimens here figured and described were collected by Mr. T. E. Buckley at the Towanni river, Bamangwato, on the 23rd of October, 1873.



CINNYRIS BIFASCIATUS

(WESTERN BIFASCIATED SUN-BIRD.)

Soui-manga vert et brun, Aud. et Vieill. Ois. Dor. ii. p. 46, pl. 24 (1802).

Certhia bifasciata, Shaw, Gen. Zool. viii. p. 198 (1811, ex Aud. et Vieill.).

Cinnyris nitens, Vieill. N. Dict. xxxi. p. 514 (1819); Bonn. et Vieill. Enc. Méth. ii. p. 585 (1823); Less. Man. d'Orn. ii. p. 47 (1828).

Violet-breasted Creeper, Lath. Gen. Hist. B. iv. p. 248. no. 41 (1822).

Nectarinia bifasciata, Gray, Gen. B. i. p. 97 (1847).

Cinnyris bifasciatus, Bp. Consp. Av. i. p. 407. no. 32 (1850).

Nectarinia jardinei, Verr. in Hartl. Orn. W.Afr. p. 47. no. 133 (1857); Hartl. J. f. O. 1861, p. 109; Monteiro, P. Z. S. 1865, p. 96; Bocage, Journ. Lisb. i. p. 135. no. 35 (1866); Sharpe. P. Z. S. 1869, p. 566; Gray, Hand-l. B. i. p. 106. no. 1286 (1869); Sharpe, Cat. Afr. B. p. 38. no. 360 (1871); Sharpe, P. Z. S. 1873, p. 717; Bouvier, Cat. Ois. Marche, &c. p. 13 (1875); Reichen. Corresp. Afrik. Gesellsch. 1875, p. 179.

♂ similis *C. mariquensi*, sed minor et pilei colore metallico minùs cupreo nitente distinguendus.

♀ similis fœminæ *C. mariquensis*.

HAB. in Africa occidentali.

Adult Male. Upper parts, as well as the entire head and neck, metallic golden green, as are also the least and median series of wing-coverts; upper tail-coverts of a deeper shade of green; remainder of the wings blackish brown; tail blue-black, the feathers narrowly edged with bronzy green; the metallic-green throat is bordered by a steel-blue collar, succeeded by a broader one of deep red, the feathers of which have narrow subterminal bars of steel-blue shaded with violet; remainder of the under surface of the body black; under surface of the wings brownish black; bill and legs black; irides dark brown. Total length 4·6 inches, culmen 0·75, wing 2·4, tail 1·65, tarsus 0·65.

Adult Female. Upper parts, as well as the sides of the head, olive; a partial buff eyebrow; wings dark brown, with the least and median series of coverts olive, and the remainder of the feathers edged with olive-yellow; upper tail-coverts and tail brownish black, the feathers edged with olive, and those of the latter with pale ends, broadest towards the sides; underparts buff, inclining to yellow on the centre of the breast; the lower throat and the front and sides of the chest with indistinct olive central streaks to the feathers; under surface of the wings brown, with the inner margins of the quills and the coverts white, the latter tinted with yellow; bill and legs black; irides dark brown. Total length 3·9 inches, culmen 0·7, wing 2·0, tail 1·4, tarsus 0·6.

HAB. West Africa, from Gaboon to Benguela.

Obs. I deem it unnecessary to figure this species, as it only differs from *C. mariquensis* in its smaller size and in the almost entire absence of coppery shade on the head, back, and throat. The description of

the adult male is taken from one of M. Verreaux's types of *C. jardinei* from the Gaboon, a more than usually fine specimen, in Mr. Sharpe's valuable collection of African birds.

THE present species, as here restricted, is exclusively confined to West Africa; for I consider that the specimens from the east and north-east portions of this continent which have been called *C. jardinei*, belong to distinct races.

There are really four very nearly allied forms, differing only in their measurements; but they each seem to have a distinct habitat. *C. mariguensis* is from South Africa, *C. bifasciatus* from the west coast, *C. microrhynchus* from the Zanzibar district, and *C. osiris* from Abyssinia. We cannot, as has been generally done, only select *C. mariguensis* and *C. bifasciatus* as good species; for *C. osiris* is so nearly intermediate between them, that it cannot be referred more justly to one than to the other, while *C. microrhynchus* is the smallest, and quite as distinct from *C. bifasciatus* as that bird is from *C. osiris*.

The present species was first described and figured by Audebert and Vieillot from specimens sent from Malimba by Perrein, and was afterwards renamed by M. Verreaux from Gaboon specimens. It is fairly plentiful in West Africa, ranging from the Gaboon to Benguela, and is recorded by Mr. Monteiro as being very abundant in the latter locality, even in comparatively barren places, and feeding upon little insects, especially small spiders. Professor Barboza du Bocage, who has kindly presented me with a specimen from Loanda, has also recorded it from Dombe, in Benguela, where, according to Señor Anchieta, it is known to the natives by the name of "Kanjongo." On the Loango coast it has been collected by Falkenstein.



CINNYRIS MICRORHYNCHA.

(EASTERN BIFASCIATED SUN-BIRD.)

Nectarinia jardinei (nec Verr.), Hartl. P. Z. S. 1867, p. 824; Finsch & Hartl. Vög. Ost-Afr. p. 218, pl. 2. fig. 1 (1870); Sharpe, P. Z. S. 1873, p. 713.

Cinnyris jardinei, Cab. in Von der Decken, Reis. Ost-Afr. iii. p. 29. no. 23 (1869).

C. similis C. bifasciatæ, sed staturâ multo minore et rostro parvissimo distinguenda.

Hab. in Africa orientali.

Adult. Distinguished from *C. bifasciata* by its very small bill and smaller general size.

Young Male. Upper parts brown very slightly tinted with olive; sides of the head of the same colour, with an eyebrow and a streak from the lores buff; wings dark brown, the feathers with broad pale edges slightly tinted with olive; lesser wing-coverts and upper tail-coverts mottled with metallic golden green; remainder of the upper tail-coverts dark brown; underparts buff, shaded with yellow down the centre of the breast, a broad band from the chin down the centre of the throat dusky black interspersed with metallic golden green plumes; front and sides of the chest and under tail-coverts mottled with dusky black centres to the feathers; under surface of the wing brown, with the inner margins of the quills and the coverts white; beak and legs black; irides dark brown. Total length 4.2 inches, culmen 0.6, wing 2.1, tail 1.6, tarsus 0.55.

HAB. Zanzibar district.

THIS pretty little Sun-bird is very closely allied to *C. bifasciata*, of which it is the East-African representative, and is confined, as far as we at present know, to the Zanzibar coast.

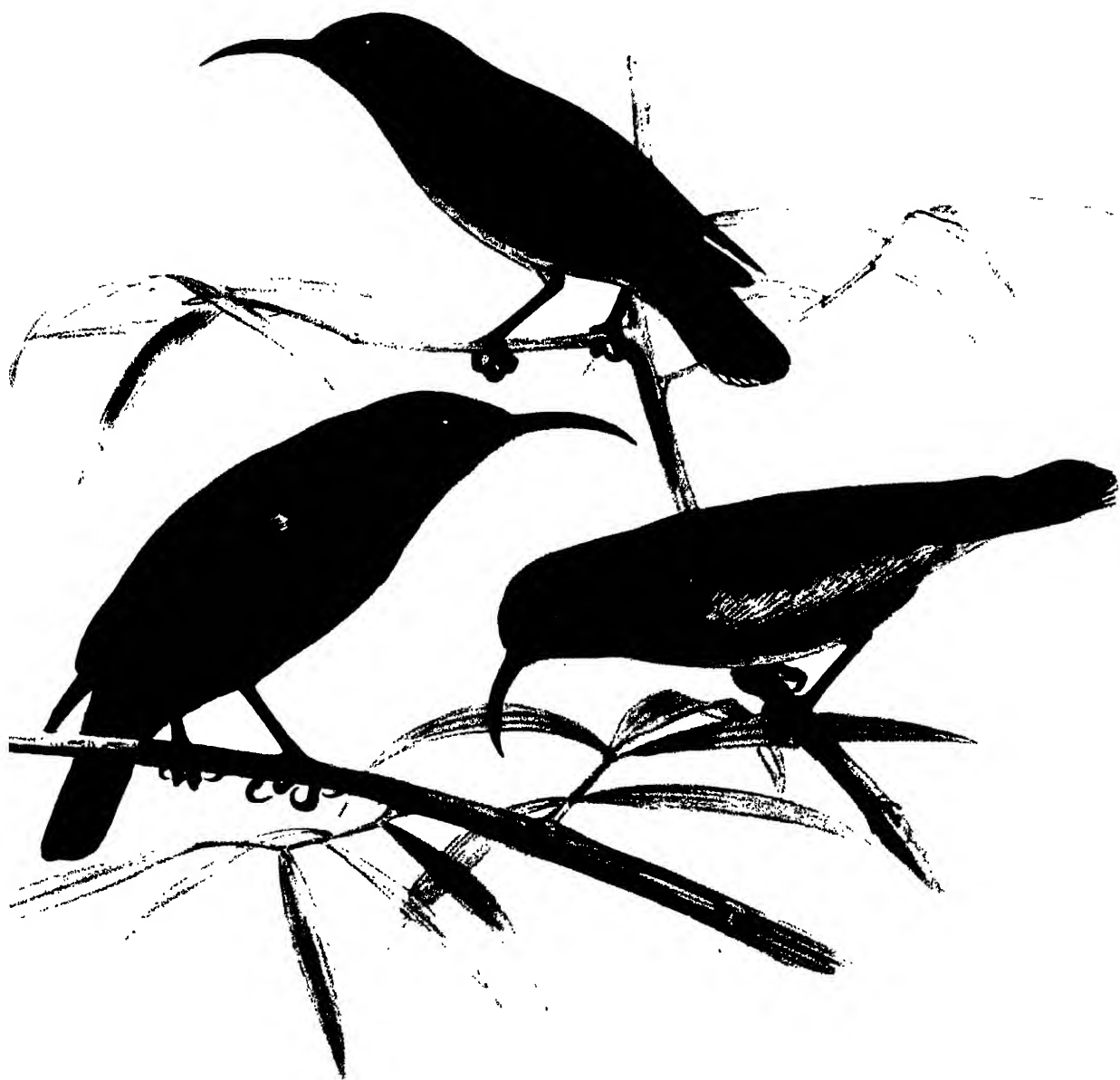
A few years ago the late Sir William Jardine brought a specimen of this bird to the British Museum for identification, considering it to be distinct from *C. bifasciata*; and Mr. Sharpe at once recognized it by its short bill as the same species which had then recently been sent from Mombas by Mr. Wakefield. This character presented by its little short bill is one readily to be recognized; and with the least care there is no fear of confounding it with *C. bifasciata*. I have described the immature male from one of three specimens in Mr. Sharpe's collection, sent by Mr. Wakefield from Mombas.

Nothing has been published on the habits of this species; but they are, in all probability, identical with those of *C. mariguensis*. I am unable also to give a detailed description of the species, as the specimens examined by me have been in incomplete plumage; but the adult male apparently of this species has been figured by Finsch and Hartlaub (Vög. Ost-Afr. pl. 2. fig. 1), and the latter gentleman, writing in 1867, first mentions its occurrence in Zanzibar under the title of *Nectarinia jardinei*, and observes:—"There is no difference whatever between the Zanzibar bird and a specimen from Angola in the Bremen Museum." I feel confident, however, that the

distinctive character pointed out in my description of this species will be found to hold good with the two specimens alluded to by Dr. Hartlaub.

The closely allied forms are important to recognize ; for although to the more casual observer they may appear to unnecessarily complicate the subject by increasing the already large list of known species, the recognition of them is of considerable assistance to those who would study the subject more thoroughly, by restricting the range of certain species, and enabling us more truthfully to point out the true limits of natural zoo-geographical districts.

It is worthy of note that, of the many West-African species of Sun-birds which have been met with between the Senegal river and the Congo, not one extends its range to any part of the east coast between Cape Guardafui and the Cape of Good Hope ; for I consider *Anthodiæta zambesiana* certainly distinct, though very closely allied to *A. hipodila*. Now in North-east Africa this is not the case ; a few of the West-African species finding their way into those districts tend to show that the interior of Africa between the Nile basin and the west coast presents a less formidable barrier, at least for birds, than does Central Africa south of about 10° North latitude.



CINNYRIS COMORENSIS.

(JOANNA SUN-BIRD.)

Cinnyris comorensis, Peters, J. f. O. 1864, p. 161.

Nectarinia comorensis, Sclat. Ibis, 1864, pp. 297, 299; Gray, Hand-l. B. i, p. 107, no. 1303; Hartl. Vög. Madagascar, p. 93 (1877); E. Newton, P. Z. S. 1877, pp. 297, 302.

♂ *ad.* suprâ metallicè viridis, uropygio nigricante: tectricibus alarum minimis dorso concoloribus, medianis et majoribus nigris, illis latè, his angustè metallicè viridi marginatis: remigibus brunneis, secundariis vix olivascenti lavatis: supracaudalibus nigris metallicè viridi marginatis: rectricibus purpurascenti-nigris metallicè viridi limbatis: facie laterali totâ guttureque metallicè viridibus, plumis jugularibus vix purpurascente adumbratis: fasciâ transversali præpectoralis sordidè coccineâ: corpore reliquo subtùs fumoso-nigro chalybeo vix lavato: fasciis pectoralibus latè miniatis basaliter flavis: subalaribus fumoso-brunneis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* mari dissimilis: suprâ olivascens: tectricibus alarum majoribus dorso concoloribus, reliquis et remigibus brunneis angustè olivaceo limbatis: rectricibus nigris, apicaliter cinerascenti-albido notatis, externis latius: supercilio indistincto flavido: facie laterali dorso concolori: genis et gutture toto pallidè olivascenti-flavidis, plumis basaliter fuscis quasi marmoratis: corpore reliquo subtùs olivascenti-flavo, subcaudalibus fuscis latè flavido marginatis: subalaribus et remigum pogonio interno marginaliter albidis: axillaribus olivascenti-flavis.

HAB. in insulâ Comorensi "Anjouan" vel "Johanna" dictâ.

Adult Male. Entire head and neck, back, least series of wing-coverts, scapulars, and upper tail-coverts metallic green; a small black patch in front of the eyes; remainder of the wings brownish black with the median series of wing-coverts broadly edged with metallic green, the greater series only slightly margined; tail black, the feathers edged with metallic green; at the base of the uniform metallic green throat is a reddish-brown pectoral band; remainder of the underparts brownish black; pectoral tufts bright scarlet; bill and legs black; irides dark brown. Total length 4·4 inches, culmen 0·75, wing 2·2, tail 1·65, tarsus 0·65.

Adult Female. Upper parts olive including the sides of the head; wings dark brown, all the feathers with paler edges, shaded with olive on the least and median series of coverts and on the primaries; tail black with white tips to the feathers, broadest towards the outer ones; underparts pale olive-shaded yellow fading almost into white on the throat and under tail-coverts; the dark centres to the feathers of the throat partially visible; under surface of the wings brown with the inner margins of the quills and the coverts white, the latter faintly tinted with yellow. Total length 4·1 inches, culmen 0·65, wing 2, tail 1·3, tarsus 0·65.

HAB. Joanna, one of the Comoro Islands.

THE Comoro Islands are situated in the Mozambique channel, about halfway between the mainland of Africa and the northern extremity of Madagascar. From these islands we at present

know of two species of Sun-birds—*C. comorensis*, confined to the island of Joanna, and *C. coquerelli* inhabiting the island of Mayotte. They both have the entire head, neck, and back metallic green: in the former the abdomen is black, while in the latter it is yellow; so that they belong respectively to my “dark” and “pale” metallic groups.

The present species differs from all its nearest allied forms by the scarlet pectoral tufts and by the entire head and neck being uniform metallic green. Its natural position is between *C. bifasciatus* and *C. bouvieri*; from the former it is distinguished by the scarlet pectoral tufts, and from the latter by the forehead and chin being of the same metallic green as the remainder of the head and neck.

It was first discovered by Dr. Peters during his short visit to the Comoro Islands; and more recently Mr. C. E. Bewsher collected six specimens on the island of Joanna, where it is, according to his notes, very common, and bears the native name of “Shetozee.” “The nest,” he states, “is similar to those of others of the genus. The egg is greyish white, spotted and blotched, especially at the larger end, with ashy brown.”

These specimens have been kindly lent to me by Professor Newton; and I have described and figured the adult male and female, and have also represented in the illustration the immature male. These three specimens are now in the Cambridge Museum.



CINNYRIS OSEA.

(PALESTINE SUN-BIRD.)

Cinnyris osea, Bp. Comptes Rendus, xlii, pt. 2, p. 765 (1856).

Nectarinia osea, Tristram, Ibis, 1862, p. 278; id. Ibis, 1864, p. 230; id. P. Z. S. 1864, p. 445; id. Ibis, 1865, p. 72, pl. 2; Gould, B. Asia, part 19 (1867); Tristram, Ibis, 1868, p. 334; Gray, Hand-l. B. i, p. 106, no. 1287 (1869); Sharpe, Cat. Afr. B. p. 40, no. 373 (1871); Elwes, P. Z. S. 1873, p. 645.

♂ *ad.* suprà metallicè viridis, tectricibus alarum minimis et medianis dorso concoloribus, majoribus et remigibus brunneis, his vix olivascenti lavatis: supracaudalibus metallicè chalybeis: rectricibus purpurconigris, extùs angustè metallicè viridi marginatis: fronte et vertice metallicè violaceis, posticè vix viridescente: facie laterali et regione paroticà metallicè viridibus: maculà triangulari anteoculari nigrà: genis anticis gutture et pectore metallicè violaceis, gutture imo et laterali viridescente: corpore reliquo subtùs nigro, plumis indistinctè indigotico limbatis: fasciis pectoralibus latè scarlatinis, basaliter flavis: subalaribus fuscis, margine alari metallicè viridi: rostro et pedibus nigris: iride saturatè brunneà.

♀ *ad.* suprà pallidè cinerascanti-brunnea, alis brunneis, plumis dorsi colore marginatis: supracaudalibus nigricanti-brunneis, sordidè metallicè viridi marginatis: rectricibus nigricantibus, medianis sordidè viridi marginatis, omnibus pallidè brunneo terminatis, exterioribus latiùs: facie laterali dorso concolori, regione paroticà vix saturatiùs brunneà: strigà supraoculari minutà indistinctà fusco-albidà: genis et corpore subtùs toto pallidè cinerascantibus, subcaudalibus albicantioribus basaliter saturatè brunneis: abdomine medio flavicanti lavato: hypochondriis vix saturatioribus olivaceo paullò adumbratis: subalaribus pallidè cinerascantibus.

Hab. in Palæstinâ.

Adult Male. Upper parts metallic green including the least and median series of wing-coverts; remainder of the wings dark brown with a greenish gloss; forehead and front of the crown metallic violet gradually shading into green posteriorly; upper tail-coverts partially glossed with steel-blue; tail black, the feathers edged with metallic green; sides of the head metallic green with a triangular patch of black feathers in front of the eye; chin, upper throat, and a broad collar metallic violet gradually shading into metallic bluish green about the middle of the throat; pectoral tufts bright scarlet and sulphur-yellow; remainder of the under surface of the body brownish black, with the feathers on the chest partially glossed with metallic green on their edges; under surface of the wings dark brown, with pale inner margins to the quills and with the coverts black; bill and legs black; irides dark brown. Total length 4·4 inches, culmen 0·7, wing 2·1, tail 1·7, tarsus 0·6.

Adult Female. Upper parts light brown, as well as the sides of the head and neck; wings darker brown with pale brown edges to all the feathers; upper tail-coverts dark brown with the edges of the feathers glossed with metallic green; tail brownish black, the feathers narrowly edged with metallic green and with narrow pale ends, broadest on the outer ones; underparts brownish buff, slightly darker and browner on the lower throat and on the flanks; under tail-coverts with narrow dark-brown shaft-stripes; under surface of the wings dark brown, with the inner margins of the quills and the coverts

white, the latter shaded with sulphur-yellow; bill and legs black; irides dark brown. Total length 4 inches, culmen 0·7, wing 1·95, tail 1·5, tarsus 0·6.

Young. Similar in plumage to the adult female; but the upper parts are slightly shaded with olive, and the underparts more strongly so with pale yellow.

HAB. Palestine.

THE Palestine Sun-bird belongs to the green-backed or African division of the "Dark-metallic" group, and is nearly allied to *C. bouvieri* and *C. venustus*: from the former it is distinguished by the absence of the red pectoral band as well as by the colouring of the throat, and by the almost black abdomen, while from *C. venustus* it may at once be recognized by the black instead of buff breast.

Little was known of the history of the present species before Canon Tristram's valuable communications to 'The Ibis' upon the birds of Palestine. Although a common species in that country, especially in the Jordan valley and the neighbourhood of the Dead Sea, it was previously to 1865 only represented in our European museums by the unique type specimen which was collected by the Duc de Vallombrosa.

We shall quote very largely from Canon Tristram's notes with regard to its habits; and further details, especially with respect to its history before the year 1865, may be found in 'The Ibis' for that year (p. 72).

"Our first acquaintance with the Sun-bird," writes Canon Tristram, "commenced on the last day of the year, at Jericho, when six specimens were obtained, close to our camp at Ain Sultān, the day after our arrival. The oases of the plains of Jericho appear to be its metropolis; and we never met with it excepting in the immediate neighbourhood of water. But wherever a few tamarisks, *Zizyphus* bushes, or graceful 'retem' shade a fountain or straggling pool in some deep glen opening on the Dead Sea, there a few occur. The larger oases, however, of Jericho at the north-west and Safieh at the south-east end of the Dead Sea are the resorts of great numbers, which, though here to be found in almost every tree, are nowhere gregarious, but are noisy and pugnacious, the males chasing each other with loud cries, and as tenacious of their respective freeholds as Robins at home. The note is clear and monotonous, very much like the call of the Willow-Wren, but sharper, and often reminding one of the Blue Tit, yet with a more hissing sound. This is incessantly repeated from sunrise to evening, and the whereabouts of the male bird can at once be detected; but to see him is not so easy, as he ceaselessly hops in the centre of the very thickest and most impenetrable scrub, and darts very quickly and suddenly across the open from tree to tree. The male is extremely restless, and, as it twists and clings to one twig after another in search of insects, reminds one of the Titmouse, much more than the Creeper, in its actions. It has a curious jerking flap of the wings, opening and closing them like *Tichodroma muraria*. Occasionally I have seen two rivals for the favours of a female singing on the top of a tree, and puffing out the brilliant orange and red axillary tufts, which only at such times are at all conspicuous. The female during the winter continually repeats the same monotonous note, but almost always remains stationary, or creeping slowly about in the very centre of a bush.

"The male varies much, and does not appear to attain the nuptial dress till after Christmas, which he loses again in the summer. Not more than one in four of the males we shot in January was in full plumage, the brilliant metallic reflections of the back, throat, and breast being interrupted by many brown feathers; and I have several times taken birds who have paired, and were breeding, in this incomplete livery. We ascertained that this state of plumage is certainly not the mark of immature birds, as it is always accompanied by the bright axillary tufts, which the young birds do not acquire till after their first moult, prior to which they have the sombre dress of the female, but with a lighter-coloured breast.

"As we crept along the western shores of the Dead Sea, we met with a few pairs up the different Wadys where water remained; but here, deprived of cover, they are extremely shy and wary. In the Ghor es Safieh, under Kerak (the richest and hottest portion of the whole Ghor), the Sun-birds were as numerous as at Jericho. On our return we found them plentiful by the wooded banks of the Jordan, but never far removed from the banks. In the month of March we ascertained their summer range to be more extensive than we had expected; for one day, while shooting on the south side of Mount Carmel, on the slopes which run down to the Plain of Sharon, Mr. Bartlett declared he heard their notes; and after a long pursuit, I secured a pair close to the edge of the plain, not far from the sea. This was the only occasion on which the bird ever occurred to us away from the Jordan valley; but I have reason to believe it has been obtained in Asia Minor, as a French collector at Smyrna described to me a bird he had once received from the interior, which could only, I think, have been a female Sun-bird.

"A few days after our visit to Carmel we again met with the Sun-bird in a deep gorge, the Wady Hamam, opening onto the plain of Gennesaret. Mr. Cochrane and I pursued it in vain; but, while searching among the cliffs for Vultures' nests, Mr. Cochrane pulled down from the extremity of the twig of a hyssop-plant what he imagined to be an old nest of *Drymæca gracilis*. It had the external appearance of a loose ball of rubbish, such as might have been floated down by a sudden flood and caught in a bough of a tree. After tossing it about for some time, he threw it to me; and on examining it I was dismayed to find it a fresh nest, very firm, and compact inside, with a small hole in the side, and containing two broken fresh eggs, elongated, of a greenish white, with a zone of darker green-grey spots near the larger end. On the 23rd of May I returned to the same place, and while climbing up to a cave, the resort of *Hirundo rufula*, I struck with my head a little ball of straw and leaves attached to the extremity of a castor-oil plant, not two yards from the spot where Mr. Cochrane had found his nest. It contained three eggs, quite fresh, and was beautifully shaded both from the sun and from observation. Close by was another nest, from which the young had been reared; and we watched the female feeding the young family of three in the hyssop overhead. I am inclined to believe that they had bred twice; for we could not make out a third pair.

"Meanwhile I had returned, in April, to our old quarters at Ain Sultân, near Jericho. On the afternoon of my arrival, on the 13th of April, I discovered by myself no less than seven nests—one with three eggs, one with two hard-set, one building, and four with young. All were in precisely similar situations, suspended from the extremity of a small twig hanging down in the centre of a 'nubk' tree, whose thorny branches spread in a circle so close to the ground that I had in every instance to creep on all fours till I could get under the trees. The nests in these

places were perfectly inaccessible to the attacks of the serpents and lizards which abound there. The nests are at first very neat and compact, long straws and fibres being attached to the extremity of the drooping bough; and on these the bag is woven. When finished a few loose leaves and straggling straws are loosely fastened all round to elude observation and remove the appearance of art. I kept three young birds for ten days in a box, and fed them with bunches of the blossom of a jasmine and convolvulus. The hen bird lingered always in the neighbourhood of the tent, attracted doubtless by their cries; and when we were about to leave I turned out the two surviving captives, and was glad to see the parent take to them at once, and attend to them in an adjoining tree."

Canon Tristram has kindly forwarded to me the nest and eggs of this bird, as well as his fine series of skins. This nest, which contained three fresh eggs, was collected by him on the 23rd of May, in a small valley running up from the plains of Gennesaret. It was suspended from the end of one of the under boughs of a bush about five feet from the ground. Its form is a long oval, with the entrance-hole at one side near the top, and is composed of the seed-down of plants, a few feathers, shreds of grass, and coarse pieces of weeds carefully interwoven, and fastened together, to some extent, with spiders' webs, which material is largely used to fasten the structure securely to the bough. The coarser materials form the outer portion of the nest; and here and there the seed-pods of the castor-oil plant are interwoven in the fabric, from the bottom of which some of the rougher materials hang down and give it the appearance of rubbish cast together by accident, although in reality it forms a carefully constructed nest, solidly built, and softly lined. The eggs are of a lengthened form, white, minutely freckled with ashy olive, which freckles are so numerous towards the thicker end that they form a zone or cap of that colour. Five specimens before me measure—breadth 0·4 inch, length 0·6 to 0·7.

The specimens figured and described are the adult male and female collected at Jericho on the 4th of January, and the young bird on the 25th of May 1864, by Canon Tristram, and are in his collection.



CINNYRIS BOUVIERI.

(BOUVIER'S SUN-BIRD.)

♂ *ad.* similis *C. bifasciatus*, sed magis cuprescens: fronte et loris violaceis chalybeo lavatis: mento sordidè nigro: abdomine fumoso-brunneo: fasciis pectoralibus flavis scarlatino mixtis: fasciâ pectorali non-metallicâ rubrâ angustiore et saturatiore distinguendus.

♀ *suprà* cinerascenti-brunnea, vix olivacco tincta: supercilio fulvido indistincto: alis saturatè brunneis, plumis omnibus pallidè brunneo marginatis: caudâ nigrâ, rectricibus externis albo terminatis, extimis etiam extùs albo marginatis: subtùs lactescenti-alba, pectore medio magis flavicante: gutturis imi et præpectoris plumis medialiter fuscescenti-brunneo indistinctè striolatis.

HAB. in Africâ occidentali.

Adult Male. Upper parts, as well as the entire head and neck and the least and median series of wing-coverts, metallic golden-green, with a slight coppery shade, most intense on the ear-coverts; forehead, front half of the crown, and the lores steel-blue, shaded with violet towards the bill; a black patch in front of the eye; upper tail-coverts more emerald-green than the back; wings dark brown; tail black, the feathers edged with metallic golden-green; chin dull black; remainder of the throat golden-green, margined towards the chest by a narrow belt of steel-blue, followed by a rather broader one of metallic ruby-violet; remainder of the underparts blackish brown, slightly paler and more ashy towards the under tail-coverts, with a narrow, very deep red non-metallic pectoral band, and bright sulphur-yellow and scarlet pectoral tufts; bill and legs black; irides dark brown. Total length 4.1 inches, culmen 0.8, wing 2.05, tail 1.35, tarsus 0.62.

Adult Female. Upper parts, including the sides of the head and neck, ashy brown, very slightly tinted with olive; a partial buff eyebrow; wings dark brown, all the feathers edged with very pale brown; tail black, a few of the outer feathers tipped with white, and the outer ones narrowly edged with that colour; underparts creamy white, slightly more yellow on the centre of the breast; lower throat, front and sides of the chest with very indistinct dusky brown central streaks to the feathers; under surface of the wings brown, with the inner margins of the quills and the coverts white, the latter slightly tinted with yellow; bill and legs black; irides dark brown. Total length 4.15 inches, culmen 0.7, wing 2, tail 1.35; tarsus 0.6.

HAB. Landana, Congo.

THIS pretty little Sun-bird I have named after my friend M. Bouvier, to whom the specimens here figured and described were sent from Landana, in the Congo region, by M. Petit, his able and energetic collector, who has already procured several new species in this as yet little-explored portion of Africa.

Its structure and plumage show that it should be placed near *C. bifasciatus*, *C. osea*, and *C. venustus*, from all of which it is distinguished by its dark brown breast; from *C. bifasciatus* by its possessing yellow and red pectoral tufts, and by the colour of the forehead and chin; from *C. osea* by the colour of the chin and throat, and by the red non-metallic pectoral band; from

C. venustus by the narrower ruby-violet margin to the metallic throat, by the red pectoral band, and of course more decidedly by the dark brown instead of yellow breast. Its affinities to this latter species are shown in the coppery shade of the green plumage, and in the colouring of the forehead, chin, and throat.

The females of *C. bifasciatus* and of *C. venustus* are very similar in plumage; but the latter may be distinguished by its shorter bill. The female of the present species we may therefore presume to be also very similar; but it would be recognized from *C. venustus* by the greater length of the bill, which is, if any thing, longer than in *C. bifasciatus*. It is, however, more difficult to distinguish the females of this species from those of *C. bifasciatus*.

With seven good specimens of females before me I can separate two forms—the first similar to that which I describe as the female of this species, the other, a more olive-backed bird, with a yellow abdomen and with the throat more distinctly striped, similar to the specimen described and figured as a female of *C. bifasciatus*.

I doubt, however, if these are the specific characters of the females of the two species.

Of the first form there are two specimens labelled “female;” one, which I have above described, was procured at Landana on the 31st January, the other at Chinchoxo on the 1st April. This I believe to be the winter plumage; and in four specimens of this form none of the measurements differs by more than 0·05 inch.

The second form is certainly the plumage of immature females, and possibly also of the adult female in summer dress. Of these I have three from Landana, in which the measurements vary as follows—culmen 0·65 to 0·70, wing 1·72 to 2·0, tail 1·10 to 1·45, tarsus 0·60. The smaller measurements are apparently due to immaturity.

I figure in the accompanying Plate the adult typical specimen of *C. bouvieri*, as well as the bird which I believe to be its true female. I cannot, however, be certain that it is not a hen of *C. bifasciatus*.



CINNYRIS TALATALA.

(SOUTH-AFRICAN WHITE-BREASTED SUN-BIRD.)

Nectarinia talatala, Smith, App. Rep. Exp. S. Afr. p. 58 (1836); Sharpe, Cat. Afr. B. p. 40. no. 375 (1871); Buckley, Ibis, 1874, p. 375; Sharpe, ed. Layard's B. of S. Afr. pl. 7 (1876).

Nectarinia anderssoni, Strickl. & Sclat. Contr. Orn. 1852, p. 153; Gray, Hand-l. B. i. p. 106. no. 1285 (1869).

Cinnyricincla anderssonii, Reichb. Handb. Scansoriæ, p. 307. no. 720 (1854).

Nectarinia, sp.?, Bocage, Journ. Lisb. i. p. 332. no. 12 (1867).

Cinnyris talatala, Layard, Ibis, 1868, p. 270; id. Ibis, 1869, p. 78; Gurney, in Anderss. B. Dam. Ld. p. 72 (1872); id. Ibis, 1873, p. 255.

♂ *ad.* suprâ metallicè viridis, tectricibus alarum minimis et medianis dorso concoloribus: fronte et supracaudalibus chalybeo nitentibus: tectricibus majoribus et remigibus saturatè brunneis, pallidè brunneo angustè marginatis: caudâ indigotico-nigrâ, rectricibus metallicè viridi seu violaceo marginatis: subtus albus, mento gulâque chalybeis, medialiter viridi nitentibus: torque angusto jugulari violaceo: pectoris summi lateribus nigricantibus: fasciis pectoralibus lætè flavis.

♀ *ad.* suprâ pallidè brunnea: alis saturatè brunneis, pallidiùs marginatis: caudâ brunnescenti-nigrâ, rectricibus exterioribus dilutiùs limbatis et albido terminatis: subtus albescens.

Hab. in Africâ meridionali.

Adult Male. Upper parts metallic green, as also the entire head and neck, least and median series of wing-coverts, shaded with steel-blue on the forehead and upper tail-coverts, and more slightly so on some of the lesser wing-coverts; quills and greater coverts dark brown, the feathers narrowly edged with pale brown; tail blue-black, the feathers partially edged with dark metallic green and violet; underparts white; chin steel-blue, gradually changing into deep metallic green on the middle of the throat, which colour again merges into steel-blue and rich metallic violet towards the base of the throat, and is edged by a partial black collar, broadest at the sides; axillary tufts uniform pale sulphur-yellow; under wing-coverts and inner margins of the quills pale ashy brown; bill and legs black; irides dark brown. Total length 4·4 inches, culmen 0·8, wing 2·3, tail 1·8, tarsus 0·65.

Adult Female. Upper parts, as well as the sides of the head, uniform pale brown; a scarcely perceptible pale eyebrow; wings dark brown, the feathers edged with pale brown; tail brownish black, the outer feathers with nearly white tips and pale brown edges; underparts white, faintly tinted with ashy brown on the chin and throat; bill and legs black; irides dark brown. Total length 4·15 inches, culmen 0·75, wing 2·1, tail 1·5, tarsus 0·65.

HAB. South Africa, north of 28° S. lat.

THE present species belongs to the white-breasted section of the "pale metallic" group, and is distinguished from all the other members of the genus *Cinnyris* by its pure white breast and

uniform pale yellow pectoral tufts. It much resembles in general plumage the rare *C. albiventris* of the Somali country, which, however, may be readily distinguished by its smaller size and by having the front half of the pectoral tufts bright orange.

It inhabits South Africa, but is not found in Cape colony. On the western side of the continent it has been collected by Señor Anchieta at Capangombe, in Benguela, where it is known to the natives as "Mariapinda," a name which in that district appears to apply equally to all Sun-birds. In Lord Walden's and Mr. Sharpe's cabinets I have seen specimens collected by Mr. Andersson from Damara Land, at Ovaquenyama and Elephant Vley; and that traveller, in his notes published by Mr. Gurney (B. Damara Land, p. 72) observes:—"I only met with this exquisite little species in my journeyings to the Okavango, in the neighbourhood of which river it was very abundant during the rainy season, being a migratory species, and arriving a little before the commencement of the rains.

"I also found it very common, though exceedingly shy, on the edge of the bush in Ondonga, where I obtained its nest on February 19th; the nest was very large and strongly built, and resembled in form and material that of *C. fusca*; it contained five small, oblong, and pure white eggs. Another nest, taken on March 27th, also contained five eggs.

"This Sun-bird is exceedingly lively in its habits, and at the approach of the pairing-season it becomes inspired with the most lovely and exquisite melodies; in fact its voice is then enchanting beyond description, being a concentration of the softest thrilling and melodious notes. I always found it either singly or in pairs."

Sir Andrew Smith, during his expedition into the interior, first discovered this species, and records it as inhabiting the country between the Orange river and Kurrichane: from hence throughout Namaqua Land, as far north as Walwich Bay, I can find no evidence of its occurrence further south; but to the eastward Mr. Buckley records it as common in the Bamangwato district, where they are generally seen in pairs. From Natal it is mentioned by Mr. Gurney; and there is a specimen, collected by Mr. Meller in the Zambesi district, in Mr. Sharpe's cabinet.

To the kindness of Mr. Layard I am indebted for the following note made by Captain Harford:—"This species always goes in pairs; and I have hardly ever seen many together. They keep company very often with the 'White-eyes' (*Zosterops*), and utter a note similar to theirs." Two eggs, sent by the above-named gentleman from Natal, resembled those of *N. famosa*, but were paler and less densely speckled; axis 9", diam. 6", and rather truncated in shape.



CHNYRIS OUSTALETI
ANTHREPTES TEPHROI ÆMA

CINNYRIS OUSTALETI.

(OUSTALET'S SUN-BIRD.)

Nectarinia albiventris?, Bocage, Journ. Lisboa, 1878, p. 203.

Nectarinia oustaleti, Bocage, tom. cit. p. 254.

♂ similis *C. leucogastro* (vel *C. talatala*), sed plumis metallicis præpectoralibus rubro terminatis torquem formantibus et fasciis axillaribus anticè aurantiaco-rubris distinguendus.

Hab. in provinciâ Benguelensi Africæ occidentalis.

Adult Male. Very similar to *C. leucogaster* (better known as *C. talatala*, Smith). It differs from that bird in the bill being slightly shorter and narrower at the base, in the feathers which form the violet præpectoral collar being tipped with maroon-red, and the front half of the pectoral tufts being orange-red; bill and legs black; irides dark brown. Total length 4·5 inches, culmen 0·75, wing 2·2, tail 1·7, tarsus 0·6.

HAB. Benguela, in South-west Africa.

Professor Barboza du Bocage has named this bird after our mutual friend M. Oustalet, of the Paris Museum.

Three specimens of this species were collected by M. Anchieta at Caconda, in the interior of Benguela: two were adult males, and one a young male apparently in a dress very similar to the female; for it is described as follows:—"Brun légèrement nuancé d'olivâtre en dessus, avec les grandes couvertures alaires, les rémiges et les rectrices bordées de cette couleur; en dessous il est d'un blanc sale, lavé de jaune sur la poitrine et le ventre et de cendré sur la gorge." While alluding to the present species, I may make the following correction in the nomenclature of the common South-African White-breasted Sun-bird, which should be called *Cinnyris leucogaster*, under which title Vieillot described it in 1819. The same identical specimen was renamed by Lesson in 1831 *Cinnyris thoracicus*. It was supposed to have been brought back from Timor; but, as with so many other birds named by Lesson and Vieillot as coming from this island, the locality is erroneous. The type specimen has been well mounted, and is still to be seen in the Paris Museum. I have examined it carefully; and there can be no doubt that it belongs to the same species as *Nectarinia talatala*, Smith, described in 1836.

Cinnyris oustaleti is, in some respects, intermediate between *C. leucogaster* and *C. albiventris*, there not being quite so much red on the pectoral tufts as is generally met with in *C. albiventris*, while I have never met with a trace of red on the pectoral tufts of the common South-African *C. leucogaster*. The red on the collar is exclusively confined to *C. oustaleti*.

My description is taken from one of the types, an adult male, kindly presented to me by Professor Barboza du Bocage; and I have figured it on the same Plate with *Anthreptes tephrolæma*.

ANTHODIÆTA TEPHROLÆMA.

(GREY-THROATED COLLARED SUN-BIRD.)

Nectarinia tephrolæma, Jard. & Fraser, Contr. Orn. 1851, p. 154; Jard. Contr. Orn. 1852, p. 59; Hartl. J. f. O. 1854, p. 12. no. 116; Müll. J. f. O. 1855, p. 16. no. 170; Hartl. Orn. W. Afr. p. 51. no. 148 (1857); Cass. Pr. Philad. Acad. 1859, p. 36; Heine, J. f. O. 1860, p. 137; Hartl. J. f. O. 1861, p. 109; Gray, Hand-l. B. i. p. 108. no. 1319 (1869); Sharpe, Cat. Afr. B. p. 41. no. 384 (1871).

Anthodiæta tephrolæma, Reichb. Hand. Scansoriæ, p. 294. no. 689 (1854).

Tephrolæma resplendens, Heine, J. f. O. 1860, p. 137.

♂ *ad.* suprâ aurato-viridis: dorso postico, uropygio et supracaudalibus olivascenti-flavis: tectricibus alarum minimis et medianis dorso concoloribus, majoribus autem, remigibus rectricibusque nigris olivaceo-flavo limbatis: capite laterali dorso concolori: loris nigricantibus: mento et gulâ cinereis, gutture et præpectore aurato-viridibus: torque jugulari aurantiaco: pectore superiore cinereo, corpore reliquo subtùs pallidè olivascenti-flavo: fasciis pectoralibus lætè flavis: rostro nigro: pedibus brunneis: iride saturatè brunneâ.

♀ *ad.* mari dissimilis: suprâ olivacea, uropygio vix flavicante: alis saturatè brunneis, tectricibus olivaceo, remigibus olivascenti-flavo limbatis: rectricibus brunnescenti-nigris, versus apicem pallidioribus, olivascente marginatis: subtùs olivacea sulfureo lavata, gutture et pectore laterali paullo cinerascentibus.

♂ *jun.* similis fœminæ adultæ: subtùs sulfureus, hypochondriis et subcaudalibus vix olivaceo lavatis: mento et gulâ albicantibus.

Hab. in Africa occidentali.

Adult Male. Upper parts golden green, also the least and median series of wing-coverts; lower portion of the back, upper tail-coverts, and the edges of the quills and tail-feathers olive-yellow; remainder of the wings and tail dark brown; sides of the head golden green, with a black patch in front of the eye; chin and upper throat ashy grey; remainder of the throat and the sides of the neck golden green; a narrow orange collar on the crop; chest ashy grey; pectoral tufts bright yellow; abdomen and under tail-coverts very pale olive-yellow; bill black; legs and irides dark brown. Total length 3·3 inches, culmen 0·5, wing 2·2, tail 1·3, tarsus 0·6.

Adult Female. Upper parts olive, slightly yellower on the lower back; wings dark brown, the coverts edged with olive, and the quills with olive-yellow; tail brownish black, the feathers edged with olive and with pale ends; underparts olive shaded sulphur-yellow, slightly more ashy on the throat and sides of the breast. Total length 3·75 inches, culmen 0·5, wing 2·1, tail 1·4, tarsus 0·6.

Young Male. Upper parts similar to adult female; underparts, chin and throat ashy white slightly tinted with yellow; below sulphur-yellow, paler and slightly washed with olive on the flanks and under tail-coverts. Total length 3·4 inches, culmen 0·5, wing 1·9, tail 1·35, tarsus 0·6.

HAB. West Africa from the Niger district to Angola.

Obs. A specimen in Lord Walden's collection, labelled "♂ juv., Muni River (*DuChaillu*)," is similar in plumage to the adult female, but is more ashy on the throat, and has no pale endings to the tail-feathers.

THE adult males of this well-marked species may be readily recognized by the clear grey chin and upper throat, which is encircled by the metallic green of the lower throat and sides of the neck. The plumage which I assign to the adult female is not so satisfactorily determined; it is the female as described by the late Sir W. Jardine (*Contr. Orn.* 1851, p. 154) and by Dr. Hartlaub (*Orn. W.Afr.* p. 51), but does not agree with the supposed female of Mr. Cassin (*Pr. Philad. Acad.* 1859, p. 36), who remarks that the latter is "entirely dark ashy (about the colour of the throat of the male), darker above and lighter on the underparts." My description of the young male is taken from a specimen in Mr. Sharpe's collection, sent from the Ogowe river by DuChaillu; and I have no doubt whatever that it is here rightly determined.

This pretty little bird is a native of the West-African forest districts, but is apparently not common anywhere, though most abundant from Angola to the Gaboon. Mr. Monteiro met with it at Bembe, in Angola, whence I have seen an adult male in Mr. Sharpe's collection, as also several from the Gaboon, on the authority of MM. DuChaillu and Verreaux. In Lord Walden's collection there are specimens from the Camma and Muni rivers, collected by M. DuChaillu, who also obtained it, as recorded by Mr. Cassin, on the Ogowe and Moonda rivers. The types described by the late Sir W. Jardine were collected in Fernando Po by Mr. L. Fraser; and we are also informed (*Contr. Orn.* 1852, p. 59) that that gentleman likewise sent a specimen home in a small collection, made partly at Abomey and partly at Old Calabar, thus extending its range from Angola to the Niger district.



CINNYRIS ALBIVENTRIS.

(EAST-AFRICAN WHITE-BREADED SUN-BIRD.)

Nectarinia albiventris, Strickl. Contr. Orn. 1852, p. 42, pl. 86; Sclat. tom. cit. p. 124; id. Rep. Coll. Somali Country, p. 14 (1860); Speke, Ibis, 1860, p. 247; Heugl. Faun. Roth. Meer. in Peterm. Mitth. p. 21. no. 54 (1861); id. J. f. O. 1864, p. 203; Gray, Hand-l. B. i. p. 107. no. 1292; Finsch & Hartl. Vög. Ost-Afr. p. 223 (1870); Heugl. Orn. N.O.-Afr. p. 234 (1871).

Cinnyricincla albiventris, Reichb. Handb. Scansoriæ, p. 306. no. 717, pl. 607=562 b. figs. 4078-79 (1854).

♂ *ad.* similis *C. talatalæ* sed minor: fasciis pectoralibus anticè aurantiacis, posticè flavis.

♀ *ad.* similis feminæ *C. talatalæ* sed minor.

Hab. in terrâ Somalensi Africæ orientalis.

Adult Male. Upper parts, including the least and median series of wing-coverts, metallic green glossed with steel-blue, passing into violet, shaded steel-blue on the forehead and upper tail-coverts; quills and greater series of wing-coverts dark brown, the feathers narrowly edged with pale brown; tail brownish black, the feathers edged with bronzy green; chin and throat violet, shaded steel-blue, inclining to green on the sides of the upper throat; breast and under tail-coverts pure white; pectoral tufts orange in front, and sulphur-yellow behind; thighs dark brown; under surface of the wings brown, with white inner margins to the quill; under wing-coverts partially glossed with metallic green or steel-blue. Total length 3·6 inches, culmen 0·65, wing 2·1, tail 1·5, tarsus 0·65.

Adult Female. Upper parts, as well as the sides of the head, uniform pale brown; wings dark brown, the feathers edged with pale brown; upper tail-coverts and the tail dark brown, the former slightly glossed with bronzy green; underparts white. Total length 3·1 inches, culmen 0·60, wing 1·95, tail 1·3, tarsus 0·6.

HAB. Somali Country, in Eastern Africa.

Obs. The type specimens, from which the above descriptions have been taken, are in very bad condition, and consequently difficult to measure accurately.

LITTLE is known concerning the present species, which appears to be entirely confined to the Somali country, a portion of Africa of which the avifauna is very slightly known. The type specimens, an adult male and female, from which the above descriptions and figures have been taken, were collected by Mr. J. Daubeny, at Ras Hafoon, the most eastern point of the African continent. These specimens, which are in the Strickland collection at Cambridge, have been kindly lent to me by Mr. Salvin. They undoubtedly belong to a well-marked species, which I consider should be arranged between *C. venustus*, of the West coast, and *C. talatala*, of South

Africa; in size it is about intermediate. It resembles *C. venustus* in the orange and yellow pectoral tufts, and *C. talatala* in the pure white of the abdominal region.

Captain Speke, the only other traveller who records having met with this species, observes (Ibis, 1860, p. 247) that he found it on the plateau of the Somali country, always in company with *C. habessinicus*, flitting around the plants, shrubs, and flowers.

That it is a very local species we may fairly presume, from so little being known respecting it; for although it is entered by Von Heuglin in his great work, and by Drs. Finsch and Hartlaub in the 'Vögel Ost-Afrika's,' those gentlemen never had an opportunity of examining a specimen.

The Sun-bird described by Von Heuglin (J. f. O. 1867, p. 301), and labelled *Nectarinia souimanga*, in Prince Paul von Württemberg's cabinet, evidently belongs to this group, but cannot be confounded with the present species, as it has the abdomen yellow; but it is positively asserted by that gentleman to be distinct from *C. affinis*, Rüpp., and is apparently an unnamed species, which I shall trust to be able to examine before the conclusion of my present work.



MIZRIS AFFINIS

CINNYRIS AFFINIS.

(ABYSSINIAN YELLOW-BREASTED SUN-BIRD.)

Violet-tailed Creeper, Iath. Gen. Hist. B. iv, p. 232, no. 20 (1822).

Cinnyris affinis, Rüpp. Neue Wirb. p. 87, pl. 31, fig. 1 (1835); Lefebvre, Voy. Abyss. Ois. p. 87 (1845-50); Ferr. et Gal. Voy. Abyss. iii, p. 248 (1847); Bp. Comptes Rendus, 1854, p. 265.

Nectarinia affinis, Jard. Monogr. Sun-birds, p. 275 (1842); Rüpp. Syst. Uebers. p. 28 (1845); Bp. Consp. Av. i, p. 406, no. 12 (1850); Müll. J. f. O. 1855, p. 14; Heugl. Syst. Uebers. Vög. N.O.-Afr. p. 21 (1856); Horsf. & Moore, Cat. B. E.I. Co. Mus. ii, p. 737, no. 1076 (1856); Heugl. Faun. Roth. Meer, p. 21 (1861); Brehm, Habesch. pp. 211, 284 (1863); Heugl. J. f. O. 1864, p. 262, 1867, p. 300; Gray, Hand-l. B. i, p. 108, no. 1326 (1869); Finsch, Trans. Z. S. vii, p. 229 (1869); Blanford, Geol. & Zool. Abyss. p. 351, no. 108 (1870); Sharpe, Cat. Afr. B. p. 40, no. 377 (1871); Heugl. Orn. N.O.-Afr. p. 232 (1871).

Cyanomitra affinis, Reichb. Handb. Scansoriæ, p. 292, no. 680, pl. 573, fig. 3907 (1854); Antin. & Salvad. Ann. Mus. Civ. Genova, iv, p. 452 (1873).

Ad. similis C. venusto, sed paullò major: suprà vix cuprescenti-bronzino nitens: pectore et subcaudalibus lactè flavis: tibiis saturatè brunneis: fasciis pectoralibus flavis, interdum aurantiaco mixtis: subalaribus cinerascens.

HAB. in Africâ septentrionali-orientali.

Adult Male. Very similar to *C. venustus*, but slightly larger; upper parts with scarcely any coppery bronze reflections; breast and under tail-coverts bright yellow; thighs dark brown; pectoral tufts chrome-yellow, occasionally slightly mottled with orange-red; under wing-coverts ashy grey. Total length 4.2 inches, culmen 0.65, wing 2.15, tail 1.6, tarsus 0.6.

HAB. North-east Africa.

THE present species is so closely allied to the West-African *C. venustus* that the same characters distinguish them both from the other members of this family, while the specific characters are shortly given in my description of this latter species.

It is confined to North-eastern Africa: here Rüppell found it plentiful in small family parties on the bushes and trees along the valleys of the Abyssinian coast-country of the Massowah district and on the road to the Taranta pass. According to Mr. Blanford it "replaces *N. lubesinica*, above 3500 to 4000 feet, and extends upwards into the temperate regions," breeds about May; and he saw young birds with their parents in July.

From Von Heuglin's observations it does not appear to be very generally distributed; for he only found it on the eastern side of the Abyssinian highlands, and at no greater elevation than 6000 to 7000 feet above the sea. They do not appear to come actually down to the coast, but

rather frequent the neighbouring mountain-valleys, especially where the *Accasia*, *Asclepia*, and *Euphorbia* are in blossom. He also met with it at Takah and Southern Kordofan, where it appears to be resident, and was in full breeding-plumage during the rainy season.

Mr. Jesse found it plentiful about Rayrayguddy, and procured specimens on his journey from Undul Wells to Facado, but did not meet with it in Bogos, owing probably to its having migrated from that district during his visit; for the Italian naturalists Antinori, Beccari, and Issel, who procured, while near Keren, young birds in May and specimens in the moult in October, consider it to be a summer visitant in Bogos, arriving there in May and remaining to the end of November, where it frequents the same localities as *C. habessinicus*; they did not meet with it in December, January, or February, at which season it probably approaches the equator; but its furthest southern limits cannot yet be very accurately defined.

In Tigré, according to Lefebvre, it is common throughout the year, where it may be seen flitting around the bushes which clothe the hill-sides.

It probably never extends to the west of the Nile valley; for we have little doubt that the *Nectarinia affinis* of M. Bouvier's catalogue of the collection made by Marche and De Compiègne in West Africa should be referred to the closely allied *C. venustus*.

It breeds in April and May; and I have extracted the following notes upon its domestic economy from Dr. Brehm's observations:—A pair, he remarks, although not in full plumage, had their nest almost completed. The latter was placed not more than three feet from the ground, between the leaves of a bush and a creeping plant, which were partly interwoven into its structure, which consisted of scraps of bark and fibre, fine grass and down, lined inside with hair and wool. In form it was bag-shaped, with an entrance near the top, which was partially hidden by a large leaf. The birds were engaged eight days in constructing this edifice.

The specimen, from which my figure and descriptions are taken, was collected by Mr. Jesse at Rayrayguddy, and forms the centre of the group in the illustration.

CINNYRIS VENUSTUS.

(LITTLE BUFF-BREASTED SUN-BIRD.)

Certhia venusta, Shaw, Nat. Misc. x, pl. 369 (1799); Lath. Ind. Orn. ii, Suppl. p. 35, no. 2 (1801); Shaw, Gen. Zool. viii, p. 247 (1811).

Leona Creeper, Lath. Gen. Syn. Suppl. ii, p. 164, no. 19 (1801); id. Gen. Hist. B. iv, p. 234 (1822).

Soui-manga de Sierra Leone, ou le Quinticolor, Aud. et Vieill. Ois. Dor. ii, p. 116, pl. 79 (1802).

Certhia quinticolor, Bechst. Kurze Uebers. p. 194, no. 85 (1812).

Cinnyris venustus, Cuv. Règne Anim. i, p. 412 (1817); Vieill. N. Dict. d'Hist. Nat. xxxi, p. 512 (1819); Bonn. et Vieill. Enc. Méth. ii, p. 598 (1823); Bp. Consp. Av. i, p. 407, no. 29 (1850); Nicholson, P. Z. S. 1878, p. 130.

Band-breasted Creeper, Lath. Gen. Hist. B. iv, p. 260 (1822).

Cinnyris quinticolor, Less. Man. d'Orn. ii, p. 45 (1828).

Cinnyris pusillus, Swains. B. W. Afr. ii, p. 138 (1837, nec Vieill.); Bp. Consp. Av. i, p. 406, no. 9 (1850); id. Comptes Rendus, 1854, p. 265; Cab. Mus. Hein. i, p. 102, no. 560 (1850).

Nectarinia parvula, Jard. Monogr. Sun-birds, p. 181 (1842).

* *Nectarinia venusta*, Jard. tom. cit. p. 252, pl. 7; Hartl. J. f. O. 1854, p. 11, no. 113; Licht. Nomencl. Av. p. 55 (1854); Müll. J. f. O. 1855, p. 16, no. 180; Hartl. Orn. W.-Afr. p. 48, no. 136 (1857); id. J. f. O. 1861, p. 109; Bocage, Jorn. Lisb. ii, p. 41, no. 16 (1868); Gray, Hand-l. B. i, p. 107, no. 1312 (1869); Sharpe, Cat. Afr. B. p. 40, no. 376 (1871); Reichenow, J. f. O. 1875, p. 30; Bouvier, Cat. Ois. Marche, &c., p. 13 (1875); Bocage, Jorn. Lisb. 1878, p. 2.

Chalcomitra venusta, Reichb. Handb. Scansoriæ, p. 280, no. 648, pl. 569, fig. 3884 (1854).

Cyanomitra pusilla, Reichb. tom. cit. p. 291, no. 679, pl. 615, figs. 4105-6.

? *Nectarinia affinis*, Bouvier, Cat. Ois. Marche, &c., p. 14 (1875).

♂ *ad.* suprâ metallicè viridis, cuprescenti-bronzino nitens: tectricibus alarum minimis dorso concoloribus: tectricibus reliquis remigibusque saturatè brunneis, primariis extûs pallidiore brunneo marginatis: supra-caudalibus chalybeis: rectricibus nigris, metallicè viridi marginatis, extimis ad apicem pallidioribus: plagâ frontali pulchrè violacèâ chalybeo nitente: facie laterali et colli lateribus dorso concoloribus: plumis antocularibus nigris: genis anticis et gulâ violaceis, hâc sordidè chalybeo lavatâ: gulâ imâ metallicè viridi cupreo nitente: jugulo et præpectore metallicè violaceis: corpore reliquo subtûs flavo, fasciis pectoralibus scarlatinis, vel flavis scarlatino striatis: subcaudalibus pallidiûs flavis: subalaribus albidis vix flavido lavatis: remigibus subtûs brunneis, intûs albo marginatis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* mari dissimilis: brunnea, alis et supracaudalibus paullò saturatioribus: supracaudalibus caudâque saturatè brunneis ferè nigricantibus, externis conspicuè apicaliter cinerascentibus: loris flavidis: facie

lateralis brunnea: genis et corpore subtus sordide flavis, gula magis brunnescente: subalaribus et remigum margine interno albidis.

Hab. in Africa occidentali.

Adult Male. Upper parts metallic green with a coppery bronze reflection; forehead and front half of the crown metallic bluish violet; wings dark brown, with narrow pale edges to the quills and greater coverts, least and median series of coverts metallic green like the back; upper tail-coverts shaded with steel-blue; tail black, the feathers narrowly edged with metallic bluish-green, and with narrow pale ends to a few of the outer feathers, becoming white on their inner webs; feathers in front of the eye black; cheeks metallic violet, gradually shading off into blue and green; chin and upper throat black, with steel-blue edges to the feathers, which colour gradually passes into metallic bluish-green on the centre of the throat, and then expands into a broad metallic violet breast-band, followed by a partial black band separating the metallic colours from the buff of the breast, thighs, and under tail-coverts; pectoral tufts sulphur-yellow, strongly mottled with orange-red; under surface of the wings dark brown, with the inner margins of the quills and the coverts white, the latter shading into dark brown along the bend of the wing; bill and legs black; irides dark brown. Total length 3.6 inches, culmen 0.65, wing 1.95, tail 1.45, tarsus 0.55.

Adult Female. Upper parts ashy brown, as well as the sides of the head and neck; wings brown, with paler edges to the feathers; upper tail-coverts dark brown; tail brownish black, the feathers narrowly edged with glossy olive, a few of the outer feathers with narrow pale ends, becoming white on their inner webs; cheeks and underparts buffish white, with a slightly more yellow shade down the centre of the breast; under surface of the wings brown, with the inner margins of the quills and the coverts white; bill and legs black; irides dark brown. Total length 3.8 inches, culmen 0.6, wing 1.85, tail 1.2, tarsus 0.55.

HAB. West Africa.

This species belongs to the "pale metallic" group; that is to say, it has the upper parts metallic and the breast pale, in this instance buff—a character by which the species may be most readily distinguished. It is so closely allied to *C. affinis* of North-eastern Africa, that, although we shall describe that bird by simply pointing out its distinctions from the present species, we think it best also here to remark upon those characters.

The Little Buff-breasted Sun-bird is exclusively confined to the west coast, while *C. affinis* is only found in the north-eastern division of the African continent; for we presume the *Nectarinia affinis*, Bouvier, should be referred to the present bird, founded, we believe, upon a specimen of this species in which the breast is strongly shaded with yellow. A specimen of this form I now have before me from Bissao. It is in immature plumage; but its measurements agree with those above given for this species, and it also presents the following specific characters, which are, perhaps, the ones most to be relied upon:—Thighs buff, not dark brown as in *C. affinis*; under wing-coverts white, not shaded with ash as in the north-eastern representative species.

As a general rule, however, the buff colour of the breast, combined with the pale yellow and orange-red pectoral tufts, are the most strongly marked characters; but in this species the pectoral tufts are not constant in their colouring, being occasionally uniform pale sulphur-yellow, when the species somewhat approaches *C. talatala*, but is always distinguished from that bird by the metallic violet forehead; and, besides, the breast is never white.

Although this pretty little Sun-bird has long been known to science, our information respecting it is limited to the mere skins.

Its range in West Africa extends from Senegal to the Gaboon; and it appears to be most abundant towards its northern limits. Swainson's type came from Senegambia.

I have examined specimens collected by Marche and De Compiègne from Dakar, Hann, Joal, and Sierra Leone, and M. Verreaux's specimens from Casamanse and Bissao. On the Gold Coast it is rare, or confined to certain localities; for Dr. Reichenow was the first person to record it from the Aguapim Mountains; but it is apparently not so uncommon in the Lagos district, for Mr. Henry Robin sent home three specimens from Abeokuta. Our descriptions and figures are taken from an adult male from the Gaboon and a female from Sierra Leone, both from the collection of M. J. Verreaux, by whom they were given to Mr. Sharpe. On the same illustration we have figured the adult male of the closely allied *C. affinis*. These three specimens are now in the British Museum.

CINNYRIS HEUGLINI.

(VON HEUGLIN'S SUN-BIRD.)

Nectarinia soui-manga, Heugl. J. f. O. 1867, p. 300.

Nectarinia, spec. 1, Heugl. Orn. N.O.-Afr. p. 233 (1871).

♂ juv. "similis *N. affinis*, minor, rostro longiore, debiliore, magis incurvo, alis brevioribus, tarsis debilioribus: uropygio (tergi et interscapulii modo) pulchrè aurato-viridi, nec purpurascenti-chalybeo: pectore, abdomine et subcaudalibus flavis: fasciculis axillaribus aurantiacis, ex parte lætè sulfureis: maculâ frontali, ut videtur, in fundo aurato-viridi chalybeâ: rectricibus coracino-nigris, delicatè aurato-viridi limbatis: long. tot. circa 4", rostro a fr. vix 7"', al. 1" 11"', tars. 6¾"', caud. 1' 3''''' (*Von Heuglin*).

Hab. in Africâ septentrionali-orientali.

Male. Like *Cinnyris affinis*, but smaller, with a longer, weaker, and more curved bill, shorter wings, and more feeble tarsi; rump beautiful golden green, in the same way as the back and interscapular region, not purplish steel-blue; breast, abdomen, and under tail-coverts yellow; pectoral tufts orange and bright sulphur-yellow; a frontal spot, apparently steel-blue on a golden green ground; tail-feathers crow-black, delicately edged with golden green.

HAB. North-eastern Africa.

IN North-eastern Africa there appears to exist a second species of yellow-breasted Sun-bird closely allied to *C. affinis*, of which we have not been able to examine a specimen, and only know of it from Von Heuglin's description, which we have copied above. This description was taken from specimens collected at Quamamile and Singué, south of Fazogl, and preserved in Prince Paul of Württemberg's collection at Mergentheim. They were, we are informed, not in full breeding-plumage, but are certainly distinct from *C. affinis*, and agree in size with *C. soui-manga*.

As no specific name has yet been applied to this species, it appears necessary to give it a title; and we therefore propose to call it *Cinnyris heuglini*, in honour of the late Baron von Heuglin, to whose researches we are indebted for what we at present know regarding this Sun-bird.



CINNYRIS COQUERELI.

(MAYOTTE SUN-BIRD.)

Nectarinia coquerellii, Verr. J. f. O. 1860, p. 90; Hartl. Faun. Madag. p. 34 (1861); Gray, Hand-l. B. i, p. 107, no. 130 (1869); Hartl. Vög. Madag. p. 92 (1877).

Nectarinia coquereli, Schl. P. Z. S. 1866, p. 421; Schl. & Van Dam, Faun. Mad. p. 71, pl. 18, fig. 1 (1868); E. Newton, P. Z. S. 1877, p. 302.

♂ *ad.* suprâ metallicè viridis vix bronzino nitens, tectricibus alarum minimis et medianis dorso concoloribus: alâ reliquâ saturatè brunneâ, plumis angustè viridi limbatis: supracaudalibus lætioribus viridibus: rectricibus indigotico-nigris, extûs metallicè viridibus: facie laterali et gutture toto metallicè viridibus: corpore reliquo subtûs lætè flavo, hypochondriis imis vix olivaceo lavatis: tibiis nigricantibus: subcaudalibus albidis flavo lavatis: fasciâ pectorali medianâ miniatâ: subalaribus albis flavo lavatis: remigibus brunneis, intûs pallidiûs marginatis: rostro et pedibus nigris: iride saturatè brunneâ.

HAB. in insulâ Comorensi "Mayotte" dictâ.

Adult Male. Upper parts deep metallic bronzy green; least and median series of wing-coverts of the same colour; remainder of the wings dark brown; tail bluish black, with narrow metallic-green edges to the feathers; sides of the head, chin, and throat deep metallic green like the back; at the base of the metallic throat a very few black feathers; breast bright yellow, with a scarlet patch down the centre of the chest and fading into buff on the under tail-coverts, which have dark triangular centres; thighs mottled with dark brown; under surface of the wings dark brown with pale inner margins to the quills, and with the coverts white; bill and legs black; irides dark brown. Total length 3·8 inches, culmen 0·75, wing 1·95, tail 1·4, tarsus 0·6.

HAB. Island of Mayotte, one of the Comoro group.

THIS pretty and well-marked species is confined to the island of Mayotte, one of the Comoro group, situated between Africa and the northern portion of Madagascar. Here it was first discovered by Dr. Coquerel, and was named after that gentleman by M. J. Verreaux in 1860.

It belongs to the yellow-breasted division of my "pale metallic" group, but is not very nearly allied in its colouring to any of the other forms which constitute this group, and may be readily recognized by the broad scarlet patch down the centre of the chest, as well as by the entire head and throat being uniform green.

The following notes I take from Pollen and Van Dam:—It loves to flit around the mimosa and other trees of the acacia family, and may occasionally be observed on the fronds of the cocoanut-trees in search of its food, which consists, like that of the other Sun-birds, principally of honey, in search of which it will occasionally entirely hide itself in the chalice of the large flowers. It is continually on the move, beating its wings like a butterfly, and uttering its song, which reminds one of that of the Blue Tit, although more feeble. It is often seen in company

with *Zosterops mayottensis*; but generally it lives alone, and was never seen to congregate in such large parties as *C. notatus* and *C. souimanga*. The French colonists of the island of Mayotte call it “Colibri.”

The specimen which we have here figured and described is a male in the British Museum, formerly presented to Mr. Sharpe by M. J. Verreaux.



CINNYRIS SOUIMANGA.

(COMMON MADAGASCAR SUN-BIRD.)

Grimpereau violet de Madagascar, Briss. Orn. iii, p. 638, no. 18, pl. 32, figs. 2, 3 (1760).

Le Soui-manga, Montb. Hist. Ois. v, p. 494 (1778); Aud. et Vieill. Ois. Dor. ii, pp. 39, 41, pls. 18, 19 (1802).

Violet Creeper, Lath. Gen. Syn. B. ii, p. 705, no. 7 (1781); id. Gen. Hist. B. iv, p. 222, no. 10 (1822).

Certhia souimanga, Gmel. S. N. i, p. 471 (1788); Bechst. Kurze Uebers. p. 178, no. 7 (1812).

Certhia madagascariensis, Lath. Ind. Orn. i, p. 282, no. 7 (1790); Shaw, Gen. Zool. viii, p. 208 (1811).

Cinnyris madagascariensis, Cuv. Regn. Anim. i, p. 412 (1817); Vieill. N. Diet. d'Hist. Nat. xxxi, p. 492 (1819); Bonn. et Vieill. Enc. Méth. ii, p. 591 (1823); Less. Man. d'Orn. ii, p. 24 (1828).

Nectarinia madagascariensis, Jard. Monogr. Sun-birds, p. 276 (1842).

Cinnyris souimanga, Bp. Consp. Av. i, p. 407, no. 18 (1850); Reichb. Handb. Scansoriae, p. 290, no. 676, pl. 577, figs. 3928-30 (1854).

Nectarinia souimanga, Müll. J. f. O. 1855, p. 15, no. 157; Hartl. J. f. O. 1860, p. 90; id. Faun. Madag. p. 34 (1861); Roch & E. Newton, Ibis, 1862, p. 272; Sclat. P. Z. S. 1863, p. 163; E. Newton, Ibis, 1863, p. 342, pl. 13, fig. 1 (egg); A. Newton, P. Z. S. 1865, p. 834; Schl. P. Z. S. 1866, p. 421; Grand. Rev. et Mag. Zool. 1867, p. 355; Schl. & Poll. Faun. Madag. p. 70 (1868); Gray, Hand-l. B. i, p. 107, no. 1293 (1869); Sharpe, P. Z. S. 1870, p. 388; id. Cat. Afr. B. p. 40 (1871); Bartlett, P. Z. S. 1875, p. 65; Hartl. Vög. Madag. p. 87 (1877).

♂ ad. suprâ sordidè metallicè viridis, plumis marginaliter lilacino-bronzino nitentibus, tectricibus alarum minimis et scapularibus summis dorso concoloribus: tectricibus reliquis remigibusque brunneis, primariis extûs obscurè olivaceo limbatis: dorso postico et uropygio olivaceis, supracaudalibus saturatè brunneis: rectricibus indigotico-nigris, extimis apicaliter pallidioribus: gutture toto pileo concolori, jugulum versûs saturatè chalybeo nitente: fasciâ jugulari sordidè rubrâ: præpectore fuscescenti-brunneo: corpore reliquo subtûs flavo, hypochondriis olivascentibus: fasciis pectoralibus latè flavis: subcaudalibus fuscis fulvo marginatis: subalaribus pallidè flavis: remigibus subtûs brunneis, intûs cinerascanti-albis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ a mari diversa: suprâ sordidè brunnea vix olivaceo lavata, uropygio magis olivascente: alis saturatiûs brunneis, plumis obscurè olivaceo limbatis: tectricibus minimis extimis vix chalybeo lavatis: supracaudalibus rectricibusque nigris, externis ad apicem pallidioribus: facie laterali saturatiûs brunneâ: genis et gutture flavicanti-olivaceis, plumis basaliter fuscis: corpore reliquo subtûs obscurè flavo, hypochondriis sordidè olivascentibus: subalaribus albis flavo lavatis: axillaribus latè flavis: remigibus subtûs saturatè brunneis intûs cinerascanti marginatis.

Hab. in insulâ "Madagascar" dictâ.

Adult Male. Upper parts as well as the sides of the head and neck and the least series of wing-coverts deep metallic green, with lilac-bronze reflections; remainder of the wings dark brown, the feathers with narrow pale edges, shaded with olive on the secondaries; lower half of the back olive; upper tail-coverts dark brown; tail black, a few of the outer feathers with pale ends; in front of the eye a triangular black patch of feathers; chin and throat metallic green, of the same shade as the remainder of the head, but shading off at the base of the throat into a narrow steel-blue collar; at the base of the metallic neck comes an irregular maroon-brown chest-band, followed by a broader one of brownish black; remainder of the underparts buff, shaded with yellow down the centre of the body, and with olive on the flanks; under tail-coverts buff, with broad triangular brown centres to the feathers; pectoral tufts bright yellow; under surface of the wings dark brown, with the inner margins of the quills and the coverts white, the latter tinted with yellow; bill and legs black; irides dark brown. Total length 4·5 inches, culmen 0·7, wing 2·2, tail 1·6, tarsus 0·6.

Adult Female. Upper parts, sides of the head, and the least series of wing-coverts olive; a slight indication of a yellowish eyebrow; remainder of the wings dark brown, with narrow paler margins to the feathers; upper tail-coverts and tail brownish black; cheeks and throat buff, slightly tinted with olive, and with obscure dusky bars down the centre of the throat formed by the black basal portions of the feathers; under surface of the body pale yellow, shaded with olive on the flanks, and with obscure dusky mottling on the front of the chest, owing to the dark colour of the basal portions and centres of the feathers; under tail-coverts dark brown, broadly edged with buff; bill and legs black; irides dark brown. Total length 4 inches, culmen 0·7, wing 2, tail 1·4, tarsus 0·6.

HAB. Madagascar.

THE name Souimanga (Sugar-eater) is the one by which this bird is known in Madagascar, where it is a fairly abundant species, and generally distributed over the island.

The characters which will be found readily to distinguish this bird are the yellowish buff breast, the broad maroon and black chest-band, and the lower half of the back being olive and not of metallic colouring.

In the north-eastern districts, according to Pollen and Van Dam, it is particularly abundant about the shady mimosa trees in the plain which extends at the base of the hills on which stands Fort Hova, at Anourontsanga (Mourounsang). It feeds chiefly from the flowers of the *Acacia lebbec*.

Mr. E. Newton gives the following notes upon this species:—"The song is strong, loud, and very like a Willow-Wren's. We observed it everywhere between Tamatave and Ankera Madinika, where we left the forest. On October 31st, near Ranomafana, I watched a hen bird of this species building for some time." The nest, which had not at that time been roofed over, "was placed on a low bush near the ground, and much exposed. . . . Outside it was built of coarse grass and decayed leaves, untidily put together; inside it was lined with the down of some grass or reed." In another article he writes:—"Common everywhere. On the 1st of October, paddling up the Hivondrona, I found a nest of this bird, containing two eggs, on the bank, almost overhanging the water; it was a domed one, and very prettily placed in some tall grass, the blue flower of a *Lobelia bicolor* almost closing the entrance. It is composed outwardly of broad leaves of grass, decayed, and a little moss; over the entrance it has a sort of projecting porch of

a finer grass ; and inside it is lined with down of some plant. The eggs, which were hard-set, are greyish white, thickly freckled with light hair-brown, so as to show but little of the ground-colour. They are 0·59 inch in length by 0·44 inch in breadth." A figure of the egg accompanies this paper (Ibis, 1863, pl. 13, fig. 1).

The adult male and female, which we have here figured and described, were collected for us by Mr. Crossley.



CINNYRIS AFER.

(GREATER DOUBLE-COLLARED SUN-BIRD.)

- Red-breasted Green Creeper*, Edwards, Gleanings Nat. Hist. iii. p. 285, pl. 347. fig. 1 (1764).
Certhia afra, Linn. S. N. i. p. 186. no. 11 (1766, ex Edwards); P. L. S. Müll. S. N. ii. p. 257. no. 11 (1773); Gm. S. N. i. p. 476 (1788); Lath. Ind. Orn. i. p. 286. no. 18, p. 287. var. β , γ (1790); Shaw, Gen. Zool. viii. p. 192 (1811); Bechst. Kurze Uebers. p. 181. no. 18 (1812); Lath. in Salt, Voy. Abyss. p. 345 (1816).
Certhia viridis, Scop. Ann. i. p. 52. no. 60 (1768); Gm. S. N. i. p. 469 (1788); Lath. Ind. Orn. i. p. 281. no. 2 (1790); Vieill. N. Dict. d'Hist. Nat. xiii. p. 506 (1817); id. Enc. Méth. ii. p. 583 (1823).
Soui-manga vert à gorge rouge, Buff. Hist. Ois. v. p. 514 (1778); Aud. et Vieill. Ois. Dor. ii. p. 63 (1802).
Green Creeper, Lath. Gen. Syn. B. ii. p. 702. no. 2 (1781).
African Creeper, Lath. tom. cit. p. 717. nos. 18 et 18 A.
Grimpereau vert du Cap de Bonne Espérance, Sonn. Voy. Ind. ii. p. 208, pl. 116. fig. 2 (1782).
Certhia canora, Scop. Flor. et Faun. Insub. ii. p. 90. no. 61 (1786).
Blue-rumped Creeper, Lath. Gen. Syn. Suppl. p. 131. no. 53 (1787); id. Gen. Hist. B. iv. p. 238. no. 28, et p. 239, var. A (1822).
Certhia scarlatina, Sparrm. Mus. Carl. ii. pl. 58 (1788).
Soui-manga à ceinture bleue, Aud. et Vieill. Ois. Dor. ii. p. 28, pl. 10 (1802).
Le Sucrier à plastron rouge, Levaill. Ois. d'Afr. vi. p. 176, pl. 300 (1808); Sundev. Crit. om Levaill. p. 57 (1857).
Cinnyris afra, Cuv. Règn. Anim. i. p. 412 (1817); Bp. Consp. Av. i. p. 407. no. 23 (1850); Cab. Mus. Hein. i. p. 102. no. 558 (1850); Reichb. Handb. Scansoriæ, p. 288. no. 667, pl. 575. figs. 3914-15 (1854); Gurney, in Andersson's B. Damara Land, p. 70 (1872).
Cinnyris pectoralis, Vieill. N. Dict. d'Hist. Nat. xxxi. p. 497 (1819); id. Enc. Méth. ii. p. 584 (1823).
Cinnyris smaragdinus, Vieill. N. Dict. d'Hist. Nat. xxxi. p. 508 (1819); id. Enc. Méth. ii. p. 595 (1823); Less. Man. d'Orn. ii. p. 49 (1828).
Bifasciated Creeper, Lath. Gen. Hist. B. iv. p. 285. no. 98 (1822).
Cinnyris viridis, Vieill. Enc. Méth. ii. p. 588 (1823); Less. Man. d'Orn. ii. p. 46 (1828).
Nectarinia afra, Jard. Monogr. Sun-birds, pp. 169, 247, pl. 2 (1843); Gray, Gen. B. i. p. 97 (1847); Blyth, Cat. B. Mus. A. S. B. p. 224. no. 1358 (1849); Müll. J. f. O. 1855, p. 13. no. 135; Gurney, Ibis, 1860, p. 207, 1862, p. 155; Layard, B. S. Afr. p. 76. no. 123; id. Ibis, 1868, p. 243; Gray, Hand-l. B. i. p. 106. no. 1281 (1869); Sharpe, Cat. Afr. B. p. 39. no. 368 (1871); Shelley, Ibis, 1875, p. 69.
Certhia erythrogastra, Shaw, Nat. Misc. xx. pl. 837 (1847).

Cinnyris canora, Bp. Consp. Av. i. p. 407. no. 21 (1850); Reichb. Handb. Scansoriæ, p. 288. no. 666, pl. 574. fig. 3913 (1854).

Nectarinia scarlatina, Müll. J. f. O. 1855, p. 16. no. 177; Grill, Zool. Anteckn. pp. 11, 39 (1858).

Nectarinia ludovicensis, Bocage, Journ. Lisb. ii. p. 41. no. 17 (1868); Gray, Hand-l. B. i. p. 107. no. 1304.

Nectarinia canora, Gray, Hand-l. B. i. p. 106. no. 1288 (1869).

♂ *ad.* suprâ metallicè viridis, tectricibus alarum dorso concoloribus: his majoribus primariisque saturatè brunneis pallidiùs marginatis: supracaudalibus chalybeis: caudâ brunnescenti-nigrâ: gutture toto et præpectore metallicè viridibus dorso concoloribus, torque infrâ marginante angustâ metallicè chalybeâ: torque latâ pectorali scarlatinâ: fasciis pectoralibus flavis, abdomine et subcaudalibus cinerascenti-brunneis.

♀ *ad.* supra cinerascenti-brunnea, supracaudalibus olivascente lavatis: supercilio obsoletè albicante: remigibus saturatè brunneis, pallidiùs marginatis: caudâ brunnescenti-nigrâ, rectricibus externis angustè albo terminatis: subtùs pallidissimè cinerascenti-brunnea.

Hab. in Africâ meridionali.

Adult Male. Upper parts metallic green, including the least and median series of wing-coverts; greater series and quills dark brown, the feathers narrowly margined with pale brown; upper tail-coverts steel-blue; tail brownish black, the outer feather on each side paler and with a narrow whitish edge; a black patch in front of the eye; sides of the head and neck, entire throat and fore neck metallic green like the back, followed by a narrow steel-blue collar; entire front of the chest bright glossy scarlet, forming a broad belt; pectoral tufts sulphur-yellow; lower breast, under tail-coverts, and under wing-coverts ashy brown; bill and legs black; irides dark brown. Total length 5·5 inches, culmen 1·1, wing 2·6, tail 2·3, tarsus 0·75.

Adult Female. Upper parts ashy brown, with a slight olive shade on the upper tail-coverts; an obscure whitish eyebrow; wings dark brown, the feathers edged with pale brown; tail brownish black, the outer feathers on each side paler and narrowly edged with white; underparts very pale ashy brown, with a slight yellow shade down the centre of the abdomen; under wing-coverts white; bill and legs black; irides dark brown. Total length 5 inches, culmen 1·1, wing 2·5, tail 2·25, tarsus 0·75.

HAB. South Africa.

Obs. Immature males, and males in full moult, resemble the females in plumage. The brilliant colours first appear on the head and throat, and lastly on the lower back.

This handsome Sun-bird belongs to the ashy-breasted section of the "pale metallic group," and is closely allied to *C. chalybeus* and *C. chloropygius*, from which the present species may be readily distinguished by its greater size and by the greater breadth of the scarlet pectoral band.

In South Africa it is widely distributed; and although a very common and well-known bird, its occurrence has not been recorded from many districts which are apparently within its range: for instance, it has been collected by Señor Anchieta at Biballa, in Benguela, where it is known to the natives by the name of "*Kanjoi*;" and Mr. Layard records it from the Lake-Ngami district

upon the authority of Mr. Chapman; yet it does not appear to occur in Damara and Namaqua Land; and Mr. Andersson, in his notes (B. Damara Ld. p. 70), observes:—"It never came under my personal observation, except in the south-eastern districts of the Cape colony. It frequents forests, but may occasionally be observed in the more open parts during the flowering-season;" but it is entered in that work owing to its having been recorded from the Lake-Ngami district. In like manner we are assured by Mr. Layard (B. S. Afr. p. 76):—"This species never visits the neighbourhood of Cape Town. It replaces *N. chalybea* in the forest districts; but about Swellendam it is mingled with it, and keeps to the wooded river-banks. At the Knysna it is abundant, and has the same habits as *N. chalybea*, being only, perhaps, rather more shy." At Eland's Post it has been obtained by Mr. T. C. Atmore; and we are informed by Mr. Layard (Ibis, 1868, p. 243) that Mr. W. Atmore found several nests in the Long Kloof, George district, in October. "They were 'well woven with the fibre of *Asclepias*, grass-bents, snake-skins, and all sorts of odd things, and then filled up with feathers. My boys have taken three or four nests, each with but two eggs; and I believe that to be the orthodox number.' These are similar in colour (clouded grey-brown) and size to those of the western species *N. chalybea*."

It has been collected by Mr. Rickard at Port Elizabeth and at East London.

In South-eastern Africa it is plentiful and, I think, more evenly distributed. In Natal, according to Mr. T. Ayres (Ibis, 1862, p. 155), "this species is not found immediately on the coast, its range commencing about ten miles inland." During my short stay in the neighbourhood of Durban, from February to April, I did not meet with this species, it being, as I was informed, migratory, but occasionally resorting there during the breeding-season in July and August; from Pinetown, some twelve miles distant, I have received several specimens collected by Mr. T. L. Ayres. In Mr. Sharpe's cabinet I have examined specimens said to have been collected in the Zambesi district by Mr. Meller, and from Algoa Bay, upon the authority of M. J. Verreaux.

The illustration represents the adult male and female.



CINNYRIS CHALYBEUS.

(LESSER DOUBLE-COLLARED SUN-BIRD.)

Le Grimpereau à collier du Cap de Bonne Espérance, Briss. Orn. iii. p. 643, pl. 32. fig. 1 (1760).

Certhia chalybea, Linn. S. N. i. p. 186. no. 10 (1766); P. L. S. Müll. S. N. ii. p. 257. no. 10 (1773); Gm. S. N. i. p. 475 (1788); Lath. Ind. Orn. i. p. 284 (1790); Shaw, Gen. Zool. viii. p. 196, pl. 28. fig. 1 (1811); Bechst. Kurze Uebers. p. 179. no. 11 (1812).

Grimpereau du Cap de Bonne Espérance, Buff. Pl. Enl. 246. fig. 3 (1770–86).

Soui-manga à collier, Buff. Hist. Ois. v. p. 502 (1778); Aud. et Vieill. Ois. Dor. ii. pp. 32, 34. pls. 13, 14 (1802).

Collared Creeper, Lath. Gen. Syn. B. ii. p. 709. no. 10 (1782); id. Gen. Hist. B. iv. p. 247. no. 40 (1822).

Jeune Soui-manga, Aud. et Vieill. Ois. Dor. ii. p. 47, pl. 26 (1802).

Sucrier à double collier, Levaill. Ois. d'Afr. vi. p. 178; Sundev. Crit. om Levaill. p. 57 (1857).

Cinnyris chalybeus, Cuv. Règn. Anim. i. p. 412 (1817); Vieill. N. Dict. d'Hist. Nat. xxxi. p. 498 (1819); id. Enc. Méth. ii. p. 585 (1823); Swains. Zool. Ill. pl. 95 (1820–33); Less. Man. d'Orn. ii. p. 22 (1828); Hahn, Vög. pt. 16, pl. 3 (1829); Less. Traité d'Orn. i. p. 293. no. 6 (1831); Hahn, Orn. Atl. *Cinnyris*, p. 2. no. 2, pl. 2 (1834); Swains. B. W. Afr. ii. p. 132 (1837); Bp. Consp. Av. i. p. 407. no. 24 (1850); Cab. Mus. Hein. i. p. 102. no. 559 (1850); Reichb. Handb. Scansoriæ, p. 289. no. 668, pl. 575. figs. 3916–18 (1854); Gurney in Andersson, B. Damara Land, p. 69 (1872).

Nectarina chalybea, Burchell, Trav. S. Afr. i. p. 221 (1822); Licht. Verz. Doubl. p. 15 (1823); Jard. Monogr. Sun-birds, pp. 166, 248, pl. 1 (1843); Gray, Gen. B. i. p. 97 (1847); Hartl. J. f. O. 1854, p. 12. no. 120; Müll. J. f. O. 1855, p. 13. no. 133; Grill, Zool. Anteckn. pp. 11, 39 (1858); Pelzeln, Reise Novara, Vög. i. p. 51 (1865); Layard, B. S. Afr. p. 75. no. 122 (1867); Gurney, Ibis, 1868, p. 43; Gray, Hand-l. B. i. p. 106. no. 1282 (1869); Sharpe, Cat. Afr. B. p. 39. no. 369 (1871); Shelley, Ibis, 1875, p. 70; Barratt, Ibis, 1876, p. 202.

Cinnyris capensis (nec Linn.), Less. Traité d'Orn. i. p. 293. no. 7 (1831).

♂ *ad.* similis *C. afro* sed minor, et plagâ pectorali scarlatinâ minus extensâ et paullo saturatiore.

♀ *ad.* similis *C. afro* sed minor.

Hab. in Africâ meridionali.

Adult Male. Similar in plumage to *C. afer*, but with the scarlet breast-band narrower and rather darker. Total length 5 inches, culmen 0·8, wing 2·25, tail 1·9, tarsus 0·65.

Adult Female. Similar in plumage to *C. afer*. Total length 4 inches, culmen 0·7, wing 2·1, tail 1·75, tarsus 0·65.

HAB. South Africa.

THE present well-known species is intermediate in size between *C. afer* and *C. chloropygius*, to which birds it bears a close affinity, especially to the former, from which, however, it differs in having a much narrower scarlet pectoral band.

It is confined to South Africa, and is there the commonest and most generally distributed of the Sun-birds; yet it is in a manner local, being in certain spots replaced by *C. afer*, from which it differs also somewhat in its habits, preferring the open country, where the low scattered bushes and tufts of grass afford a shelter more congenial to its tastes than the woodland districts. Mr. Layard remarks (B. S. Afr. p. 75):—"This is a very common species about Cape Town and as far as Swellendam; there it becomes mixed with *C. afer*, which altogether ousts it in the George and Knysna districts, and supplies its place."

Mr. Sharpe kindly informs me that Mr. Layard, in his more recent notes sent for the new edition of the 'Birds of South Africa,' corrects his original statement above quoted into "*partially* ousts it in the George and Knysna districts," and further informs us that it breeds in September, and lays two eggs.

When I was at Mossel Bay, in the latter end of February, it was certainly very abundant there; and it has been sent home by Mr. Atmore from George, and by Mr. Andersson from the Knysna.

According to Mr. Layard, in his work above quoted:—"It is one of the boldest and most familiar of all our Sun-birds, frequenting the flower-gardens in the midst of Cape Town, and even venturing into open windows to visit potted plants. Nests, reported to be of this species, have been brought to me—pendent, domed, and porticoed structures, like those of others of the family that I have seen. Eggs, minutely mottled greyish brown: axis 8^{'''}, diam. 5½^{'''}. I can confirm the statements of my correspondents, having myself taken nests of this species containing eggs and young birds. They are not, however, always pendent, being sometimes supported by twigs, interwoven with the structure. They are composed of cobwebs, stuck over with bits of dead leaves, or chips of bark, always placed on the *outside* of a bush, never among the branches. I have, however, seen one placed on the side of a bush close to a rock, so that the bird had to fly round the bush to get to it. In appearance they exactly resemble the masses made and collected by one of our commonest (South African) spiders; and I have more than once seen an inhabited spider's web forming part and parcel of the nest. Whether the nest was built in the web, or whether the spider found it a convenient place and selected it herself, or was brought with a bit of web by the birds, and then took up her abode and enlarged it, I cannot tell; but there the incongruous allies lived; and each brought up her own brood, or would have done so, had not I harried them both."

Concerning its range we are informed by Mr. Andersson (B. Damara Land, p. 69):—"I do not recollect having observed this species north of the Orange river; but I have not unfrequently met with it in Little Namaqua Land, and I am informed by Mr. Layard that it was brought by

Mr. Chapman from the lake regions. It is found both in open and wooded localities, and generally singly."

Mr. Burchell, in his 'Travels in South Africa,' gives the following account of his meeting with it on the banks of the Ongeluks river:—"I left the waggons to go in search of some beautiful birds which I had observed in the acacia-wood along the river, fluttering about the flowers of a kind of *Salvia* (sage), from which with their long, slender, curved bill they extracted the honey without settling. They proved to be the same kind of Sugar-bird (*N. chalybea*) which I had seen in the vicinity of Cape Town. Their elegance and beauty, added to their soft delicate warbling notes, engaged my admiration and attention for a long time; and it was indeed with reluctance that I permitted my desire of having this bird in my collection, to overcome my natural feelings and induce me to kill it. With much less hesitation I plucked some of the flowers from which they had been sipping, it was the most showy plant at this time in bloom."

During my visit to South Africa I frequently observed this species flitting round the high tufts of grass or the aloes, which were the only plants then in flower. At Ceres, in Cape Colony, it was very abundant amongst the grass and low bushes by the river-bank; at Cape Town and at Mossel Bay it was extremely common; and I also met with it at Algoa Bay, Durban, and Pinetown.

It has been collected by Mr. Rickard at Port Elizabeth and East London.

We are informed by Mr. Ayres (*Ibis*, 1868, p. 43) that in Natal "these Sun-birds appear to be most plentiful in July and August, the females being the more numerous. In habits and appearance they resemble *N. afra*. When the peach-trees are in full blossom the Sun-birds may be seen actively engaged in sucking the nectar, and in taking the small insects from the blossoms; the males chasing each other away from their mates with many a rapid evolution, so that it requires a good eye to follow them. They have a very sweet, though not a loud, song; and many a time have I sat under a bush the bird was on, only a few feet above my head, and listened with pleasure to his sweet warblings."

I have examined an adult male of this species in the Cambridge Museum, labelled "Senegal," which was formerly in the Swainson collection. The locality is undoubtedly an error.

The figures in the accompanying illustration represent the male in full plumage and in partial moult. I have not in this instance figured the female, as it is so similar to that of *C. afer*, that I consider to have done so would have been superfluous.



CINNYRIS CHLOROPYGIUS.

(WEST-AFRICAN DOUBLE-COLLARED SUN-BIRD.)

Soui-manga à collier noir, Aud. et Vieill. Ois. Dor. ii. p. 117, pl. 80 (1802).

Nectarinia chloropygia, Jard. Ann. Nat. Hist. x. p. 188 (1842); Jard. & Selby, Illust. Orn. N. S. pl. 50 (1842); Jard. Monogr. Sun-birds, pp. 171, 249, pl. 3 (1843); Gray, Gen. B. i. p. 97 (1847); Allen & Thompson, Exped. Niger, ii. App. p. 503 (1848); Jard. Contr. Orn. 1851, p. 151; Verr. Rev. et Mag. Zool. 1851, p. 315; Hartl. J. f. O. 1854, p. 12. no. 121; Müll. J. f. O. 1855, p. 13. no. 135; Hartl. Orn. W.Afr. p. 47. no. 135 (1857); Cass. Pr. Philad. Acad. 1859, p. 35. no. 39; Sharpe, Ibis, 1869, p. 188; Gray, Hand-l. B. i. p. 108. no. 1316; Sharpe, P. Z. S. 1871, pp. 133, 609, 615; id. Cat. Afr. B. p. 39. no. 370 (1871); Ussher, Ibis, 1874, p. 60; Reichenow, J. f. O. 1875, p. 31; Bouvier, Cat. Ois. Marche, &c., p. 13.

Cinnyris chloropygius, Bp. Consp. Av. i. p. 407. no. 31; Reichb. Handb. Scansoriæ, p. 290. no. 675, pl. 577. figs. 3926, 3927 (1854).

♂ *ad.* similis *C. chalybeo*, sed supracaudalibus metallicè viridibus dorso concoloribus: torque pectorali chalybeo nullo, et abdomine distinctè olivaceo lavato distinguendus.

♀ *ad.* suprà olivacca, tectricibus minimis et medianis dorso concoloribus: tectricibus majoribus et remigibus saturatè brunneis, olivascenti-flavo marginatis: rectricibus nigris, olivaceo limbatis et dilutiùs terminatis: facie laterali cum supercilio indistincto et corpore subtùs pallidè flavicantibus, gulâ paullo albicante.

Hab. in Africâ occidentali.

Adult Male. Upper parts metallic green, including the least and median series of wing-coverts; quills and greater wing-coverts dark brown, narrowly edged with deep olive; tail black, the feathers very indistinctly edged with bronze; a small black patch in front of the eye; chin and throat metallic green, followed by a glossy scarlet belt across the front of the chest; pectoral tufts bright yellow, lower breast, under tail-coverts, and under wing-coverts olive shaded ashy brown; bill and legs black; irides dark brown. Total length 3·6 inches, culmen 0·65, wing 1·9, tail 1·4, tarsus 0·6.

Adult Female. Upper parts olive, including the least and median series of wing-coverts; lower back slightly shaded with yellow; quill and greater wing-coverts dark brown, broadly edged with olive-yellow; tail black, the feathers narrowly edged with olive, and with pale tips, broadest on the outer ones; underparts, as well as the checks in front of the eye, and partial eyebrow pale yellow, fading almost into white on the chin and upper throat; under surface of the wings brown, with the inner margins of the quills and the coverts white, the latter tinted with sulphur-yellow; bill brownish black, inclining to flesh-colour at the base of the lower mandible; legs brownish black; irides dark brown. Total length 3·5 inches, culmen 0·6, wing 1·75, tail 1·1, tarsus 0·55.

HAB. West Africa, from Senegal to Angola.

THE West-African representative of the "ashy-breasted section" of the "pale metallic group" differs from its South-African allies, *C. afer* and *C. chalybeus*, by its smaller size, the more olive shade on the abdomen, and by the absence of the steel-blue collar and upper tail-coverts.

It inhabits the whole of the West-African region from Senegal to Angola; but northward from Fantee it is apparently scarce. As to its occurrence in Senegal we are informed by Dr. Hartlaub (Orn. W.Afr. p. 48) that there is a specimen in the Berlin Museum. It is not Swainson's *C. chalybeus* from Senegal; for having examined his type of that bird in the Cambridge Museum, I find that it is the true *C. chalybeus*, and must have come from South Africa, as did so many others of his so-called West-African birds. From Casamance it is recorded upon the authority of M. J. Verreaux; and in the British Museum there is a specimen from Cape Palmas, collected by Mr. T. R. Thompson. On the Gold Coast it is plentiful, having been sent from Elmina by Herr Weiss and Mr. Blissett; from Fantee also Mr. Ussher has procured many examples from the neighbourhood of Cape-Coast Castle and the dense forests of Denkera, as well as from the river Volta. It is, as he observes (Ibis, 1874, p. 60), "widely distributed over the west coast of Africa, and very common on the Gold Coast;" by Mr. Buckley and myself it was met with at Abrobonco and in the bush close to Cape-Coast Castle, as well as at Abouri, in the Aguapim Mountains.

It is exclusively confined to the wooded districts; and the specimens we noticed were in the low bushes, it apparently not associating with the numerous other species around the more lofty flowering trees.

We are informed by the late Sir William Jardine (Ann. Nat. Hist. x. p. 188) that Mr. Fraser found it to be very common in Fernando Po, in flocks of from twenty to fifty individuals, near the houses, where it was seen perching on the long grass and the branches of small shrubs. Its note was short, but sweet. "A female was procured breeding; the nest, made of grass, was pendent from the branches of a small bush; she alone was the architect, both carrying and weaving the materials; the male was not observed to assist in any way."

M. Marche procured it at Old Calabar; and it has been collected by Mr. Crossley in the Camaroons, and in Angola by Mr. Hamilton, as recorded by Mr. Sharpe (P. Z. S. 1871, pp. 609, 133). In the Gaboon it has been obtained by Mr. Ansell; and, from the many specimens which I have examined, it is evidently plentiful in that district, and is, according to Mr. Cassin (Pr. Philad. Acad. 1859, p. 35), "apparently one of the most abundant species in Equatorial Africa, and received in all Mr. DuChaillu's collections from the Moonda, Muni, and Camma rivers."



CINNYRIS CRUENTATUS.

(BLACK-THROATED SCARLET-BREASTED SUN-BIRD.)

Cinnyris proteus, Rüpp. Neue Wirb. p. 91 (1835).

Nectarinia cruentata, Rüpp. Syst. Uebers. pp. 26, 28, pl. 9 (1845); Brehm, J. f. O. 1853, p. 456; Müll. J. f. O. 1855, p. 14, no. 145; Heugl. Syst. Uebers. Vög. N.O.-Afr. p. 21 (1856, part.); Horsf. & Moore, Cat. B. E.I. Co. Mus. ii, p. 737, no. 1075 (1856); Heugl. J. f. O. 1861, p. 194; Brehm, Habesch, pp. 211, 286 (1863); Heugl. J. f. O. 1864, p. 262, part.; id. Reise Weissen Nil, p. 337 (1869); Gray, Hand-l. B. i, p. 107, no. 1309 (1869); Finsch, Trans. Zool. Soc. vii, p. 229 (1869); Finsch & Hartl. Vög. Ost-Afr. p. 217, note (1870); Blanf. Geol. & Zool. Abyss. p. 352 (1870); Heugl. Orn. N.O.-Afr. p. 228 (1871); Sharpe, Cat. Afr. B. p. 39, no. 366 (1871).

Soui-manga à poitrine ensanglantée, Lefebvre, Voy. Abyss. p. 87 (1845-50).

Cinnyris cruentatus, Ferr. et Gal. Voy. Abyss. iii, p. 248 (1847); Bp. Consp. Av. i, p. 406, no. 6 (1850).

Nectarinia natalensis, Sclater, Contr. Orn. 1852, p. 124.

Chalcomitra cruentata, Reichb. Handb. Scansoriæ, p. 279, no. 645, pl. 567, figs. 3864-65 (1854); Antin. & Salvad. Ann. Mus. Civic. Genova, iv, p. 450 (1873).

Ad. similis C. gutturali, sed gulâ totâ nigrâ facilè distinguendus.

Hab. in Africâ septentrionali-orientali.

Adult Male. Brownish black; forehead and crown metallic emerald-green; wings, upper tail-coverts, and tail coppery brown; some of the least series of wing-coverts metallic violet; remainder of the least series of wing-coverts, the scapulars, and edges to the median series of coverts brownish black; a short moustachial band of metallic emerald-green, ending in a few metallic-violet feathers; lower half of the throat and front of the chest bright vermilion, each feather with a narrow subterminal steel-blue bar; under tail-coverts browner and of a coppery shade; under surface of the wings coppery brown, with the coverts black; bill and legs black; irides dark brown. Total length 5·7 inches, culmen 0·95, wing 2·85, tail 2·2, tarsus 0·7.

Adult Female. Upper parts brown, as well as the sides of the head and neck, and the least series of wing-coverts; remainder of the wings, upper tail-coverts, and tail coppery brown; underparts buff, tinted with yellow down the centre of the breast; chin and throat dark brown, very slightly mottled with buff; front and sides of the chest strongly mottled with dark brown; a clearly defined buff band from the lores down each side of the throat; under surface of the wings brown, with pale inner margins to the quills, and the coverts barred with buff; bill and legs black; irides dark brown. Total length 4·8 inches, culmen 0·85, wing 2·5, tail 1·9, tarsus 0·65.

Young Male. Somewhat similar to the adult female, but with the upper parts shaded with olive; underparts pale yellow; chin and throat black; the mottling on the chest blacker, and inclining to bars.

HAB. North-east Africa.

THE chief character which distinguishes the present species from the other Scarlet-chested Sun-birds is the black colour of the chin and upper portion of the throat.

Its range is limited to the mountainous districts of Bogos and Abyssinia, and does not, apparently, extend beyond the Blue Nile. In this district it is met with, Von Heuglin informs us, from 3400 feet up to over 8000 feet in the Semien and Gala Mountains. It is generally to be seen in pairs in the wooded districts near water, where it especially frequents the *Euphorbia*, *Dahlbergia*, *Cordia*, and *Acacia*; and while searching for its food among the flowers and under the bark it may be seen climbing and fluttering from bough to bough, while the pretty and varied notes of its somewhat weak voice enliven the woodlands. He found the males in full plumage at all seasons, excepting in July and August, and considers it possible that they do not go through a regular change of plumage. I believe him to be perfectly right in regarding his former statement of its inhabiting the White-Nile district to be an error, based upon his having confounded *C. acik* with the present species.

Although Von Heuglin speaks of this bird as abundant in Abyssinia, Mr. Blanford did not find it common, but met with it occasionally about Senafé in the upper part of the pass, and in the Anseba valley, keeping, however, to the surrounding highlands. Mr. Jesse found it rare in the valleys near Senafé in April and May, but more common, though not plentiful, during July and August, between Kokai and the river Anseba.

According to Antinori it arrives in Bogos in May; and he there collected many specimens at Keren. One of these had a few metallic greenish-gold feathers at the junction of the black and red on the throat, a variety which has also been remarked upon by Von Heuglin, and of which I have also a specimen before me collected by Esler in Bogos Land.

The specimens above figured and described were collected by Mr. Esler in Bogos; the adult male is in my own collection; and the female and immature male are in the British Museum. The illustration represents a fully plumaged male and a young male, or male in moult.

Rüppell mistook the present species for *C. gutturalis* of South Africa, "le Sucrier Protée" of Levaillant, and called it *Cinnyris proteus*.



CINNYRIS GUTTURALIS.

(NATAL SCARLET-CHESTED SUN-BIRD.)

- Le Grimpereau noirastre du Brésil*, Briss. Orn. iii. p. 658, pl. 33. f. 3 (1760).
Certhia gutturalis, Linn. S. N. i. p. 186. no. 15 (1766, ex Briss.); P. L. S. Müll. S. N. ii. p. 258. no. 14 (1773); Gm. S. N. i. p. 478 (1778); Lath. Ind. Orn. i. p. 291. no. 32 (1790); Shaw, Nat. Misc. xix. pl. 797; id. Gen. Zool. viii. p. 255 (1811); Bechst. Kurze Uebers. p. 184. no. 33 (1812).
Grimpereau brun du Brésil, Buff. Pl. Enl. 578. f. 3.
L'Oiseau brun à bec de Grimpereau, Buff. Hist. Nat. v. p. 525 (1778).
Green-faced Creeper, Lath. Gen. Syn. ii. p. 723. no. 24 (1782); id. Gen. Hist. B. iv. p. 267. no. 78 (1822).
Le Soui-manga noirâtre, Aud. et Vieill. Ois. Dor. ii. p. 65 (1802).
Le Sucrier Protée, Levaill. Ois. d'Afr. vi. p. 165 (1808, part.); Sundev. Krit. om Levaill. p. 57 (1857).
Cinnyris gutturalis, Cuv. Règ. Anim. i. p. 412 (1817); Cab. in Von der Decken Reise, iii. p. 28. no. 22 (1869).
Nectarinia natalensis, Jard. Monogr. Sun-birds, pp. 193, 256, pl. 12 (1843); id. Contr. Orn. 1849, p. 62, pl. 12; Sclat. op. cit. 1852, p. 124; Müll. J. f. O. 1855, p. 14; Brehm, tom. cit. p. 375; Gurney, Ibis, 1860, p. 207; Monteiro, P. Z. S. 1865, p. 96; Bocage, Jorn. Lisb. i. pp. 135, 332 (1867); Layard, B. S. Afr. p. 80. no. 134 (1867); Finsch, J. f. O. 1867, p. 246; Bocage, Jorn. Lisb. ii. p. 41 (1868).
Cæreba gutturalis, Gray, Gen. B. i. p. 101 (1847); Bp. Consp. Av. i. p. 400, no. 3 (1850).
Cinnyris natalensis, Bp. Consp. Av. i. p. 408. no. 35 (1850); Cab. Mus. Hein. i. p. 102 (1850).
Cinnyris discolor, Bianconi, Spec. Zool. Mosamb. iii. p. 32 (1850, nec Vieill.); id. Contr. Orn. 1852, p. 134.
Cinnyris bianconii, Hartl. Contr. Orn. 1852, p. 78.
Nectarinia senegalensis, Strickl. & Sclat. Contr. Orn. 1852, p. 152; Layard, B. S. Afr. p. 80. no. 133 (1867); Chapman, Trav. S. Afr. ii. App. p. 407 (1868).
Chalcomitra gutturalis, Reichb. Handb. Scansoriæ, p. 277. no. 642 (1854); Gurney, in Andersson's B. Damara Land, p. 73 (1872).
Chalcomitra natalensis, Reichb. tom. cit. p. 278. no. 644, pl. 607. fig. 4077, pl. 571. fig. 3893.
Chalcomitra cruentata, Reichb. tom. cit. p. 279. no. 645 (part.).
Nectarinia bianconi, Kirk, Ibis, 1864, p. 320; Gray, Hand-l. B. i. p. 107. no. 1308 (1869); Sharpe, Cat. Afr. B. p. 39. no. 365 (1871).
Nectarinia gutturalis, Hartl. P. Z. S. 1867, p. 824; Sperling, Ibis, 1868, p. 289; Gray, Hand-l. B. i. p. 107. no. 1307 (1869); Sharpe, P. Z. S. 1869, p. 566, 1870, p. 142; Finsch & Hartl. Vög. Ost-Afr. p. 216 (1870); Sharpe, Cat. Afr. B. p. 39. no. 364 (1871); id.

P. Z. S. 1873, p. 713; Buckley, Ibis, 1874, p. 374; Shelley, Ibis, 1875, p. 70; Bocage, Journ. Lisb. 1876, p. 6. no. 23.

♂ *ad.* saturatè velutino-brunneus, alis caudâque cuprescentibus: capite antico metallicè viridi: tectricibus alarum minimis metallicè amethystinis: gulâ metallicè aurato-viridi, strigâ malari latâ cyaneo-viridi: jugulo et pectore superiore lætissimè scarlatinis, plumis subterminaliter chalybeo fasciatis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* suprâ brunnea, alis saturatiùs brunneis, pallidiùs marginatis: tectricibus alarum majoribus externis et tectricibus primariorum albo angustè limbatis: rectricibus saturatè brunneis, angustè albido terminatis: subtùs fulvida, abdomine et subcaudalibus vix flavo lavatis: gutture et pectore superiore brunneo marmoratis: strigâ mystacali fulvidâ.

Hab. in Africâ australi et orientali.

Adult Male. General plumage very dark velvety brown; sides of the head and neck almost black; wings and tail rather paler and strongly shaded with copper; forehead and crown metallic emerald-green; the least wing-coverts bright metallic lilac; underparts almost black; chin and upper throat metallic golden green, margined on each side by a short moustachial streak of metallic emerald-green, with a few of the feathers steel-blue; remainder of the throat and chest rich bright scarlet, each feather with a subterminal steel-blue band; under wing-coverts almost black; under surface of the quills bronzy brown; bill and legs black; irides dark brown. Total length 5.5 inches, culmen 1.1, wing 3.0, tail 2.2, tarsus 0.7.

Adult Female. Upper parts and sides of the head brown; wings dark brown with paler brown edges to the feathers; outer greater coverts and primary coverts edged with white; tail dark brown, all the feathers with narrow white ends; underparts buff, shaded with yellow on the abdomen and under tail-coverts, strongly mottled with dark brown on the throat, chest, and sides of the breast; an almost pure buff band drawn from the lores down each side of the throat; undersurface of the wings brown, the quills with hardly perceptible paler margins to their inner webs, the coverts mottled with buff; bill and legs black; irides dark brown. Total length 5 inches, culmen 1, wing 2.75, tail 2, tarsus 0.7.

Obs. Immature males resemble the old females in plumage, and their adult dress commences on the throat. The female of this species differs from that of *C. amethystinus* in having the chin and upper throat paler and more mottled, in the primary coverts being edged with white, in the browner and less olive shade of the back, and in having the inner margin of the quills darker.

HAB. Throughout South and East Africa, with the exception of Cape colony.

THIS fine species, whose plumage has the soft appearance of velvet, is a native of both South and East Africa, but is not found in Cape colony. It ranges northward on the west side of the continent as far as Loanda, where it has been procured by Dr. Welwitsch; and on the east into the Zanzibar district, being apparently not uncommon at Mombas, from whence it has been sent by Mr. Wakefield. On the west coast it is replaced by *C. senegalensis*, and in North-east Africa by *C. acik* and *C. cruentatus*.

In Angola it appears to be rare, but is evidently more abundant to the southward, having been met with by Mr. Monteiro at Kattenbella, and is recorded by Professor Barboza du Bocage

as obtained by Señor Anchieta from the Rio Chimba and Capangombe, in Mossamedes, where it is known to the natives by the name of "Mariapinda." He has recently obtained it at Humbe, on the Rio Cunene. Mr. Chapman during his travels in South Africa found it common in the Okavango valley, and in the country about Lake Ngami. In Mr. Andersson's notes, as published by Mr. Gurney, we find the following:—"In Damara Land proper it is not common; but in July 1866 I obtained several specimens at Objimbinque, where they seemed chiefly to seek their food amongst the tobacco-trees now growing so abundantly in the bed and on the banks of the Swakop. Can the increase of these trees of late years have brought more of the birds? I hardly remember to have seen them at Objimbinque previously."

Levaillant only met with it in Caffraria, and, under the wrong impression that it constructed its nest in hollow trees, fancied that it carried the smell of decayed wood on its feathers. But in its feeding and the construction of its nest it resembles the other members of this family; for we learn from Mr. Ayres (Ibis, 1860, p. 207) that it "feeds principally on the nectar of flowers, but will also eat the soft kinds of insects; it generally hangs its nest on the outer twigs of trees, at no great height from the earth, and very frequently over water." Mr. T. L. Ayres has sent me several specimens from Pinetown and Durban; but in this district it is migratory, only arriving in the cool season, and is never very abundant. I did not myself meet with it during my stay in those parts from February to April.

Mr. T. E. Buckley, during his travels in South Africa, shot this species in September and October, and remarks:—"I only met with this bird in the Matabili country, about the Imguisi and Samouqui rivers; and even there they were not abundant. The young male gets the scarlet plumage on the throat first, the feathers of the back being of a light greyish brown."

In Eastern Africa it has been found at Shupanga by Dr. Kirk, who observes that it is common in the Zambesi valley. In Mozambique Captain Sperling procured an unfinished nest, which, he states, was hanging from a twig about six feet from the ground; it was kidney-shaped, with the two lobes downwards, and the entrance opening from the bottom of one lobe; the material of which it was built was dry hay-like fibre and grass intricately interwoven. The bird was not at all shy."

Mr. Layard writes of the present species under the name of *Nectarinia senegalensis*:—"I met with this bird plentifully at Zanzibar, and at Cape Delgado, on the east coast. It frequents mango-trees, perching on the highest branches, and uttering a loud, shrill note. I killed a specimen at Cape Delgado, clinging to, and apparently building, a nest similar in shape, and hung in like manner, to those of the *Nectarinia famosa*. It was composed chiefly of cobweb and bits of lichen, and had the usual covered porch."

The figures and descriptions are taken from two specimens collected for me by Mr. T. L. Ayres at Pinetown, in Natal.



CINNYRIS ACIK.

(ACIK SCARLET-CHESTED SUN-BIRD.)

Nectarinia natalensis, Antin. Cat. p. 34 (1864, nec Jard.); Heugl. J. f. O. 1867, p. 202; Salvad. Atti R. Acc. Torino, 1870, p. 731, pl. 1, fig. 2.

Nectarinia cruentata, Heugl. J. f. O. 1864, p. 262 (part.); id. Syst. Uebers. p. 21 (1856, part.).

Nectarinia acik, Antin. J. f. O. 1866, p. 205; Heugl. Orn. N.O.-Afr. p. 230 (1871); Finsch & Hartl. Vög. Ost-Afr. pp. 217, 861 (1870).

Nectarinia senegalensis, vel *acik*, Heugl. Weissen Nil, p. 337 (1869).

ad. suprâ velutinus, nigricanti-brunneus, alis caudâque vix pallidioribus et cupreo adumbratis: pileo circumscriptè aurato-viridi, loris et facie laterali dorso concoloribus: genis anticis metallicè aurato-viridibus: mento et gulâ summâ metallicè olivascanti-viridibus: gutture reliquo et pectore lætè scarlatinis, plumis angustè chalybeo vix viridescente subterminaliter fasciatis: corpore reliquo subtùs velutino, brunnescenti-nigro, subcaudalibus vix brunnescentioribus: alis infrâ saturatè brunneis, subalaribus fère nigris: rostro et pedibus nigris: iride nigrâ.

ad. suprâ brunnea, capitis et colli lateribus dorso concoloribus: alis caudâque saturatioribus et magis bronzino-brunneis: remigibus pallidè marginatis, et rectricibus angustè pallidiùs terminatis: corpore subtùs saturatè brunneo, plumis omnibus olivascanti-flavo marginatis, pectore medio magis flavicante: subcaudalibus latè flavicanti-fulvo marginatis: alis subtùs saturatè brunneis, subalaribus latè fulvido marginatis.

Hab. in terrâ Niloticâ superiore Africæ septentrionali-orientalis.

Adult Male. Upper parts dark brown, as well as the sides of the head and neck; wings and tail rather paler and strongly shaded with copper; forehead and crown metallic golden green; chin and upper portion of the throat metallic olive-green, flanked on the sides with broad cheek-bands of metallic golden green of less extent than in *C. senegalensis*; remainder of the throat and the front of the chest bright scarlet vermilion, each feather with a narrow subterminal bar of steel-blue very slightly shaded with green; remainder of the body brownish black; under tail-coverts rather browner; under surface of the wings dark brown, with the coverts almost black; bill and legs black; irides dark brown. Total length 5 inches, culmen 0·85, wing 2·6, tail 2, tarsus 0·6.

Adult Female. Upper parts brown; sides of the head and neck the same colour; wings and tail darker and more bronzy brown; the wing-feathers with pale margins; the tail-feathers with narrow pale ends; underparts dark brown, all the feathers edged with olive-shaded yellow, which edgings are most distinct and yellowest down the centre of the lower breast; under tail-coverts very broadly edged with yellowish buff; under surface of the wings dark brown, the coverts with partial broad buff edges. Total length 4·5 inches, culmen 0·8, wing 2·4, tail 1·8, tarsus 0·6.

HAB. North-east Africa, Upper-White-Nile district.

THIS form of Scarlet-chested Sun-bird is to some extent intermediate between *C. gutturalis* and *C. senegalensis*, resembling as it does the former in the dark-brown colour of the wing and tail, and in the metallic bars to the scarlet feathers being steel-blue only slightly glossed with green; but it differs from that bird and resembles *C. senegalensis* in the absence of metallic feathers on the least wing-coverts, in the golden rather than emerald-green of the crown, and in its smaller size. We have only seen one authentic specimen of the female; in this bird the depth of the colouring, especially of the under surface of the body, is a very well-marked character, readily distinguishing it from the females of the other Scarlet-chested Sun-birds.

Antinori enters this species in his catalogue of the birds collected by him in North-eastern Africa as *Nectarinia natalensis*, and first describes it as a distinct species in a note attached to Hartmann's translation of his catalogue (J. f. O. 1866, p. 205).

According to Antinori it arrives in the Djur country (Upper-White-Nile district) from the equator about the first week in February, when a few pairs may be seen around the sweet-scented white flowers of the "babanus," or ebony of the Soudan. It also frequents other flowers, such as varieties of *Euphorbia* and *Cassia pendula*. The natives call it "Acik," and look upon its arrival as a good omen, fortelling the approach of the rainy season. The note, which it constantly utters while on the wing, he compares to that of the Chaffinch.

Antinori further states that after the 15th of April they all disappeared, but he was unable to tell where they migrated to, as he did not again meet with them. This differs from Von Heuglin's observations; for that gentleman met with them in the same locality at all seasons excepting during the months of July and August. He found them not uncommon in the country of the Upper Gazelle River, at Bongo, Wau, and the Kasanga river, usually in pairs, frequenting mostly the high trees. He received specimens of Sun-birds from the neighbourhood of Mount Belenia, on the White Nile, above the Gazelle River, collected for him about the end of January and beginning of February; these he did not closely examine, but labelled them at the time *Nectarinia cruentata*. He since believes that they probably belong to this species.

The accompanying illustration, as well as the descriptions, are taken from the type specimens in the Turin Museum.



CINNYRIS SENEGALENSIS.

(WEST-AFRICAN SCARLET-CHESTED SUN-BIRD.)

Grimpereau violet du Sénégal, Briss. Orn. iii, p. 660, no. 29, pl. 34, fig. 2 (1760).

Certhia senegalensis, Linn. S. N. i, p. 186, no. 14 (1766); P. L. S. Müll. S. N. ii, p. 258 (1773); Gm. S. N. i, p. 477 (1788); Lath. Ind. Orn. i, p. 284, no. 10 (1790); Shaw, Gen. Zool. viii, p. 205, pl. 79, figs. 1, 2 (1811); Bechst. Kurze Uebers. p. 178, no. 10 (1812).

Souï-manga violet à poitrine rouge, Montb. Hist. Ois. v, p. 500 (1778); Aud. et Vieill. Ois. Dor. ii, p. 25, pl. 8 (1802).

Senegal Creeper, Lath. Gen. Syn. B. ii, p. 209, no. 9 (1782); id. Gen. Hist. B. iv, p. 236, no. 25, note † (1822).

Sucrier Protée, Levaill. Ois. d'Afr. vi, p. 165, pl. 295, fig. 2 (1808, part.); Sundev. Krit. om Levaill. p. 57 (1857).

Cinnyris senegalensis, Cuv. Règn. Anim. i, p. 412 (1817); Hahn, Orn. Atlas, *Cinnyris*, p. 2, no. 1 (1834); Swains. B. W. Afr. ii, p. 127 (1837); Bp. Consp. Av. i, p. 408, no. 33 (1850); Cab. Mus. Hein. i, p. 102, no. 557 (1850).

Cinnyris discolor, Vieill. N. Dict. d'Hist. Nat. xxxi, p. 519 (1819); Bonn. et Vieill. Enc. Méth. ii, p. 589 (1823); Less. Man. d'Orn. ii, p. 46 (1828).

Nectarinia senegalensis, Licht. Verz. Doubl. p. 15 (1823); Drapier, Dict. Class. xv, p. 515 (1829); Kittl. Kupf. Vög. p. 22, pl. 28, fig. 2 (1833); Jard. Monogr. Sun-birds, pp. 191, 255, pl. 11 (1842); Hartl. J. f. O. 1854, p. 10; Licht. Nomencl. Av. p. 55 (1854); Müll. J. f. O. 1855, p. 13, no. 143; Hartl. Orn. W.-Afr. p. 49, no. 139 (1857); Dohrn, P. Z. S. 1866, p. 331; Bocage, Jorn. Lisb. i, p. 135, no. 37 (1866); Gray, Hand-l. B. i, p. 107, no. 1306 (1869); Sharpe, Cat. Afr. B. p. 39, no. 367 (1871); Bouvier, Cat. Ois. Marche &c. p. 13 (1875).

Chalcomitra senegalensis, Reichb. Handb. Scansoriæ, p. 278, no. 643, pl. 567, figs. 3866-67 (1854).

♂ *ad.* suprâ saturatè velutino-brunneus, tectricibus alarum minimis et medianis dorso concoloribus: majoribus cum remigibus, supracaudalibus rectricibusque conspicuè pallidiùs brunneis: pileo metallicè aurato-viridi: loris et facie laterali dorso concoloribus: genis metallicè aurato-viridibus: mento metallicè olivaceo-viridi: gutture reliquo et pectore latè scarlatinis, plumis cœlatim metallicè cyanescenti-viridi angustè transfasciatis: corpore reliquo subtùs velutino-nigricante, versùs supracaudales pallidiore: alâ subtùs bronzino-brunneâ, subalaribus saturationibus: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* suprâ brunnea, capite laterali et colli lateribus dorso concoloribus: caudâ alisque bronzino-brunneis, primariis albido limbatis: rectricibus angustè pallidiùs terminatis: corpore subtùs fulvescente, gutturis plumis brunneis fulvido marginatis et pectoris plumis medialiter brunneis, quasi marmoratis: hypochondriis brunneo lavatis: subcaudalibus saturatè brunneis: remigibus infrâ saturatè brunneis, intùs fulvido marginatis: subalaribus fulvidis flavo lavatis, basaliter saturatè brunneis.

Hab. in Africâ occidentali.

Adult Male. Back and sides of the head and neck, back, scapulars, least and median series of wing-coverts-

dark brown, fading into pale brown on the remainder of the wings, upper tail-coverts, and tail; forehead and crown metallic golden-green; chin and upper portion of the throat metallic olive-green, flanked on the sides with broad check-bands of metallic golden-green, of greater extent than in *C. acik* or *C. gutturalis*; remainder of the throat and the front of the chest bright vermilion, with a narrow metallic bluish green subterminal bar to each feather; remainder of the body blackish brown, rather paler towards the under tail-coverts; undersurface of wing bronzy brown, with the coverts darker; bill and legs black; irides dark brown. Total length 5 inches, culmen 0.9, wing 2.6, tail 1.9, tarsus 0.6.

Adult Female. Upper parts brown; sides of the head and neck of the same colour; wings and tail bronzy brown; the wing-feathers with pale edges, becoming white along the bend of the wing and on the primary-coverts; the tail-feathers with narrow pale ends; underparts buff, very strongly mottled with dark brown on the throat; the centres of some of the chest-feathers and of the under tail-coverts dark brown; flanks strongly shaded with brown; under surface of the wings dark brown, with the inner margins of the quills and the coverts buff, the latter slightly shaded with yellow, and mottled with dark brown; bill and legs black; irides dark brown. Total length 4.6 inches, culmen 0.85, wing 2.45, tail 1.7, tarsus 0.65.

Young Male. Similar in plumage to the female, excepting that the underparts are shaded with yellow; chin and throat black; chest and flanks more distinctly mottled with black instead of brown.

HAB. West Africa.

THE chief characters which distinguish the present species are the pale-brown colour of the wings and tail, the strong green shade on the subterminal metallic bars of the red feathers, and the absence of metallic colours on the least series of wing-coverts. By this last character, as well as by the golden-green shade of the crown, it approaches most nearly to *C. acik*, but is distinguished from that bird by the other characters above mentioned.

Although a well-known species to the older writers, who, however, often confounded it with the South-African *C. gutturalis*, absolutely nothing has been recorded upon its habits; and in the numerous references to this species we only find the mere localities mentioned whence specimens have been sent home. In several cases these localities are probably incorrect, even when they do not properly refer to *C. gutturalis*—for instance, as regards its occurrence in Prince's Island and on the Gold Coast. With regard to the former locality, Dr. Dohrn writes:—"I am sure that *Nectarinia splendida* and *N. senegalensis*, though entered by Erman, do not occur in Prince's Island." Dr. Hartlaub mentions a specimen, in the Bremen Museum, said to be from the Gold Coast: this we believe to be incorrect as regards locality; for no other authority for its occurrence there is to be found; and Governor Ussher, who from his long residence in that country, and from the large collection made by him there, is certainly our chief authority on its ornithology, never once saw this species; nor did Mr. Buckley, myself, or Mr. Blissett ever meet with it there. In fact, I know of no reliable instance of its capture south of Sierra Leone, although I possess a specimen originally labelled as coming from the Gaboon; but it rests only on a dealer's authority, and is of no value, especially as it bears no collector's ticket.

It has been recorded by Bocage from Goree, a small island off Cape Verd. Marche and De Compiègne collected it in Senegambia, at Haun, Daranka, and Sedhion. In the Marquis of Tweeddale's collection I have examined specimens from Cape Verd, Daranka, St. Marie, and Casamanze. In Mr. Sharpe's collection there were specimens from Senegal, and the ones here figured and described from the Gambia, Casamanze, and Bissao.



CINNYRIS AMETHYSTINUS.

(AMETHYST SUN-BIRD.)

- Soui-manga à front doré*, Aud. et Vieill. Ois. dorés, ii, pp. 21, 22, pls. 5. 6 (1802).
Sucrier velours, Levaill. Ois. d'Afr. vi, p. 160, pl. 294 (1808); Sundev. Krit. om. Levaill. p. 56 (1857).
Certhia amethystina, Shaw, Gen. Zool. viii, p. 195 (1811).
Certhia aurifrontalis, Bechst. Kurze Uebers. p. 192, no. 77 (1812).
Cinnyris amethystinus, Cuv. Règne Anim. i, p. 412 (1817); Less. Traité d'Orn. i, p. 294, no. 12 (1831); Swains. B. W. Afr. ii, p. 134 (1837); Bp. Consp. Av. i. p. 406, no. 2 (1850); Cab. Mus. Hein. i, p. 101, no. 555 (1850); Bp. Comptes Rendus, 1854, p. 265; Ayres, Ibis, 1876, p. 425; Sharpe, ed. Layard's B. S. Afr. p. 315, no. 300 (1877).
Cinnyris auratifrons, Vieill. N. Dict. d'Hist. Nat. xxxi. p. 502 (1819); Bonap. et Vieill. Enc. Méth. ii, p. 590 (1823).
Meropine Creeper, Lath. Gen. Hist. B. iv, p. 223, no. 11 (1822).
Amethystine-throated Creeper, Lath. tom. cit. p. 254, no. 51, and var. *a*.
Nectarinia aurifrons, Licht. Verz. Doubl. p. 15 (1823); Less. Man. d'Orn. ii, p. 42 (1828); Licht. Nomencl. Av. Mus. Berol. p. 55 (1854).
Nectarinia auratifrons, Drapier, Dict. Class. xv, p. 511 (1829).
Nectarinia amethystina, Jard. Monogr. Sun-birds, pp. 195, 256, pl. 13 (1842); Hartl. J. f. O. 1854, p. 10, no. 107; Müll. J. f. O. 1855, p. 14, no. 146; Hartl. Orn. W.-Afr. p. 44 (1857); Grill, Zool. Anteckn. pp. 10, 39 (1858); Gurney, Ibis, 1860, p. 207; Hartl. J. f. O. 1861, p. 108; Finsch, J. f. O. 1867, p. 246; Layard, B. S. Afr. p. 79, no. 132 (1867); Gray, Hand-l. B. i, p. 107, no. 1305 (1869); Bocage, Jorn. Lisb. 1869, p. 340; Finsch & Hartl. Vög. Ost-Afr. p. 220 (1870); Sharpe, Cat. Afr. B. p. 38, no. 361 (1871); Bouvier, Cat. Ois. Marche, p. 13 (1875); Gadow, J. f. O. 1876, p. 419; Barratt, Ibis, 1876, p. 203; Bocage, Jorn. Lisb. 1877, p. 153; 1878, p. 2.
Chalcomitra amethystina, Reichb. Handb. Scansoriæ, p. 277, no. 641, pl. 567, figs. 3861-63 (1854).

♂ *ad.* suprâ velutino-niger, sub certâ luce lilacino-bronzino nitens: alis caudâque cuprescenti-brunneis, tectricibus extûs velutino nigro limbatis, minimis chalybeis violaceo adumbratis: supracaudalibus metallicè igneo-lilacinis: fronte et vertice metallicè viridibus, postice vix aurato nitentibus: loris nigris: facie laterali, capitis collique lateribus et corpore subtûs velutino nigris, gutture metallicè lilacino: subalaribus pectori concoloribus: remigibus infrâ bronzino-brunneis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* suprâ cinerascanti-brunnea, olivacco lavata: pilci plumis medialiter saturatè brunneis quasi marmoratis: supracaudalibus saturatè brunneis, pallidè cineraceo marginatis: tectricibus alarum brunneis pallidè cineraceo marginatis: remigibus brunneis cineraceo limbatis, secundariis extûs paullò olivascentibus: rectricibus nigricanti-brunneis bronzino nitentibus et pallidè cinerascanti terminatis, externis latius

apicatis: supercilio indistincto. et angusto flavido: plagâ anteoculari fuscâ: facie laterali dorso concolori: genis pallidè flavidis: gulâ nigrâ, plumis vix cinerascenti limbatis: corpore reliquo subtùs pallidè flavido, pectoris plumis basaliter brunneis et minutè brunneo terminatis: hypochondriis longitudinaliter pallidè brunneo notatis: subalaribus albidis, basaliter brunneis: remigibus infrâ brunneis, intùs conspicuè albido marginatis.

HAB. in Africâ meridionali et meridionali-occidentali.

Adult Male. Velvety black with a lilac-bronze gloss; wings and tail of a more coppery shade; forehead and crown metallic emerald-green, with a few of the feathers on the occiput inclining to golden yellow; least series of wing-coverts violet-shaded steel-blue; upper tail-coverts, chin, and throat rich metallic lilac; chin slightly tinted with copper-colour, and the edges of the throat with violet; bill and legs black; irides dark brown. Total length 5·3 inches, culmen 1·15, wing 2·9, tail 2, tarsus 0·7.

Adult Female. Upper parts ashy olive; wings, upper tail-coverts, and tail dark brown, with ashy-olive edges to the feathers, excepting a few of the outer wing-coverts, which are edged with white; the edges of the outer tail-feathers and narrow tips to a few of the other tail-feathers white; sides of the head dusky olive shading into black in front of the eyes; eyebrows and cheeks yellowish buff; chin and throat black, the feathers partially edged with grey; under surface of the body buff with black triangular centres to the feathers, most visible on the chest, less so on the sides of the body and under tail-coverts, and almost hidden on the abdomen; under surface of the wings dark brown with the edges of the coverts and inner margins of the quills white; the outer coverts tinted with yellow; bill and legs black; irides dark brown. Total length 4·9 inches, culmen 1·1, wing 2·5, tail 1·8, tarsus 0·65.

Male in nearly full moult. Similar in plumage to the female, excepting that the buff on the eyebrows and cheeks is nearly absent; the throat is slightly darker and has a few metallic lilac feathers.

HAB. South Africa, ranging as far as Angola on the western coast.

THE South-African Amethyst Sun-bird belongs to the "dark brown" group, named *Chalcomitra* by Reichenbach, and to that section in which the front of the chest is not scarlet. Like *C. kirkii*, it is distinguished from all the other Sun-birds by its velvet-like black plumage; and these two species are separated by the colour of their upper tail-coverts, which in the present species are of a metallic amethyst-colour, while in *C. kirkii* they are black like the back.

It is a common bird in many portions of South Africa, and ranges northward as far as Angola, whence it has been recorded by Professor Bocage, as well as from Caconda, in Benguela, where it was procured by Señor Anchieta. It nevertheless appears to be absent from that portion of the south-west coast which lies between the Orange River and the Cape of Good Hope; for Mr. Andersson never met with it excepting at the Knysna; and although we have frequently received specimens from the Cape, we believe they were all collected in the more eastern portion of the colony; for, according to Mr. Layard, it is "an abundant species in the eastern provinces, but never seen near Cape-town, and not very uncommon in the forest districts of the colony." He adds:—"We have also received it from the neighbourhood of Swellendam, through Mr. Cairncross, who informs us that the specimens sent by him were procured in the mimosa trees which line the banks of the rivers flowing through that district. We saw it at the Knysna; and its habits appeared similar to those of the common *C. chalybeus*."

“Mr. Rickard informs us that it is not very common at Port Elizabeth, where it frequents the aloes when in flower; at East London, however, he says it is very abundant on the *Tecoma* (Cape Honeysuckle).”

Levaillant found this species plentiful along the Gamtoos river during the dry season; Mr. Atmore has collected specimens at Eland's Post and Graham's Town; and Lieut. Anstey at King William's Town.

It is abundant in Natal and the Transvaal, and is also, according to Mr. T. F. Buckley, common in Swazi Land, but does not cross the Limpopo into Matabili. In Natal, near the coast, Mr. T. L. Ayres has collected it for me at Pinetown, and writes:—“These Sun-birds remain in the bushy country about Pinetown throughout the year, and are generally met with in pairs. In winter, when they are out of plumage, they congregate to feed from the red flowers of one of the common shrubs, and pick up spiders &c.”

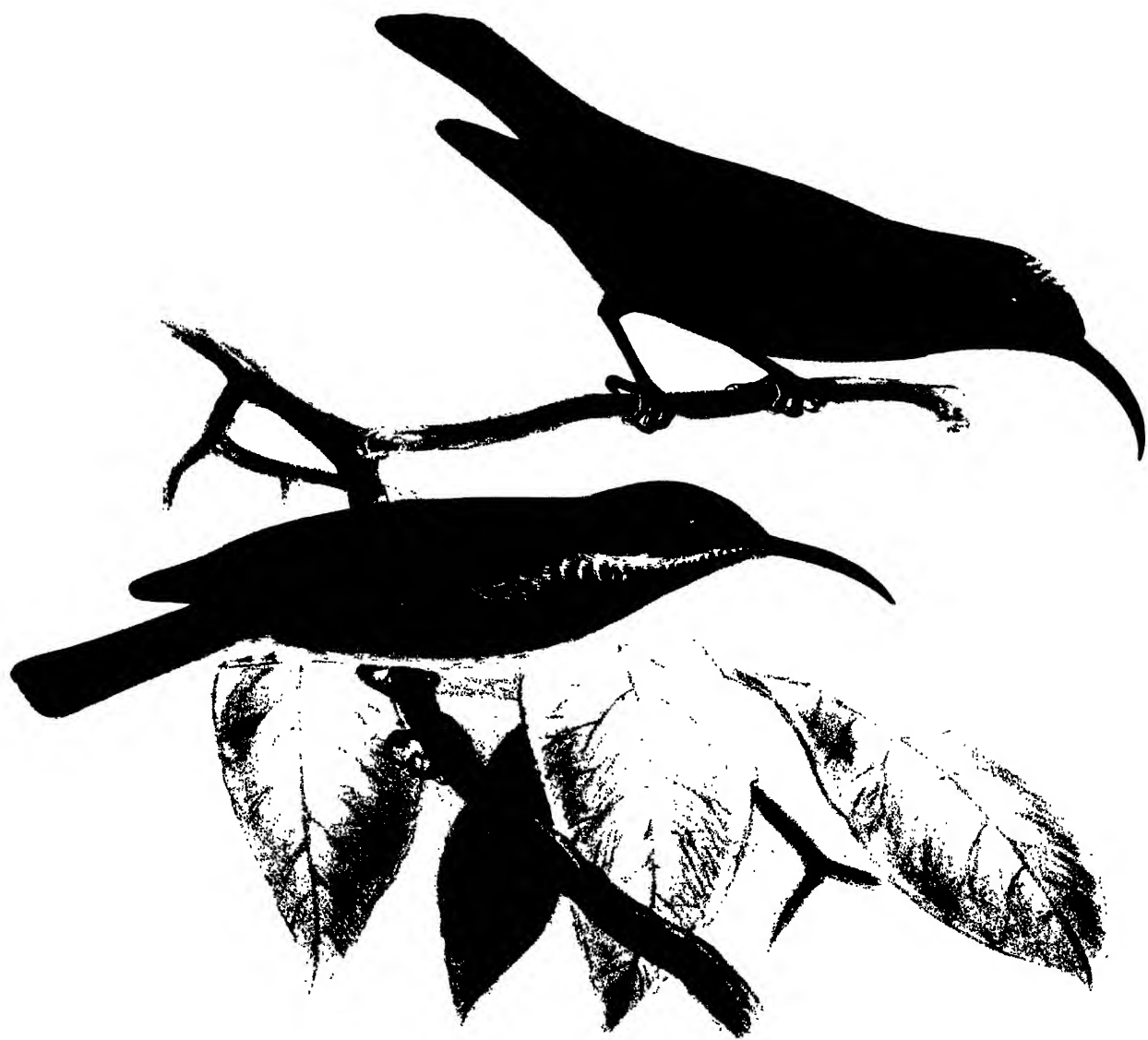
Mr. Barratt writes:—“I shot one or two near Rustenburg, and observed it more than once during my journey through the bush between Potchefstroom and Rustenburg. I also saw a few in the bush near Pretoria; and I have killed it in British Kaffraria, near East London, in company with *N. chalybea*; it is, however, much more shy in its habits than the latter bird.”

Mr. T. Ayres records it from the Lydenburg district, and informs us that the nest is similar in structure to that of *C. gutturalis*, but is not hung over water as is generally the case with the nest of the latter species. Mr. Atmore found a nest at Oudtshoorn, on the 24th of January, “hanging on a branch of an apple-tree, very rough outside, composed of short bits of stick, grass, and spider's web—arched, as are the nests of all the tribe. The number of eggs appear to be two, as we did not take these till they were incubated: before they were blown they were of a soft creamy-yellow colour. I have not seen this species west of the Gouritz river; on the other side they are plentiful, especially when the ‘wilde dagga’ is in flower.”

According to Mr. Layard, the eggs sent to him by Mr. Atmore were of a beautiful creamy grey, with indistinct, confused blotches, spots, and streaks, chiefly at the obtuse end: axis 9", diam. 6".

The male in assuming the full breeding-plumage first puts on the metallic lilac feathers on the throat; in the next stage they generally become mottled all over with black feathers, while the metallic-green crown gradually appears; but in one specimen we find the metallic crown almost perfect before any of the black feathers have appeared. The metallic-lilac upper tail-coverts are acquired when the bird has assumed about three quarters of the black plumage, and the metallic feathers on the bend of the wing only when the remainder of the full dress is almost complete.

The adult male and female here figured and described, and the male in nearly full moult, were collected for me by Mr. T. L. Ayres at Pinetown, and are still in my possession.



CINNYRIS KIRKII.

(EASTERN AMETHYST SUN-BIRD.)

Nectarinia amethystina, Kirk, Ibis, 1864, p. 320.

♂ *ad. similis C. amethystino*, sed supracaudalibus haud amethystinis distinguendus.

♀ *ad. similis* fœminæ *C. amethystini* sed minor.

Hab. in Africâ orientali.

Adult Male. General plumage blackish brown with a lilac gloss; wings and tail with a strong coppery bronze shade; forehead and crown metallic green; the least wing-coverts metallic lilac, more or less glossed with steel-blue; chin and throat metallic lilac; under surface of the wings coppery bronze, with the coverts black; beak and legs black; irides dark brown. Total length 4·8 inches, culmen 0·95, wing 2·55, tail 1·85, tarsus 0·65.

Adult Female. Similar in plumage to the female of *C. amethystinus*.

HAB. Eastern Africa.

Obs. This species differs from *C. amethystinus* in being rather smaller, and in the male having the upper tail-coverts blackish brown like the back, with no portion of them metallic.

I HAVE founded this new species of Sun-bird upon an adult male specimen in the British Museum, collected by Dr. Kirk in the Zambesi district. It is the East-African representative of *C. amethystinus*, from which bird it may be readily distinguished by its having no metallic colours on the upper tail-coverts, while it is also smaller. In the same museum there is an immature male, collected by Dr. Kirk at Shupanga in April 1862, which presents the same characters; and a female from Mombas in Mr. Sharpe's collection, obtained by Mr. Wakefield, though measuring 5·3 inches in total length, is similar in its other measurements to the male above described: otherwise I can recognize no distinctive characters between it and the female of *C. amethystinus*.

To this latter species it is so closely allied that its habits are, no doubt, similar. The only authentic information on this point referable to this species is the following, given by Dr. Kirk (Ibis, 1864, p. 320):—"Native name 'Sungwe.' The Sun-birds are abundant in open ground covered with low, flower-bearing bushes, such as Poivreas, Dalbergias, Acacias, &c.; and they frequent especially such plants as the Leonitis, searching inside the corolla for insects, and probably sucking the saccharine juices. Before the rains they lose the fine plumage, and become of a dull mixed colour. December is the breeding-season; nests have been observed among the grass, attached to its stalks, and in the bushes. The young birds may be kept for some time upon honey or sugar and water, which they lick up greedily from a straw or the corolla of a plant; but the absence of insect food probably causes them to die."

Nectarinia amethystina of the 'Vögel Ost-Afrika's' of Drs. Finsch and Hartlaub should

properly have been referred to this species; but they describe Natal specimens, I suppose from not having had the opportunity of examining East-African examples; and I trust those gentlemen will excuse me for protesting against birds being described in standard works from specimens collected beyond the boundaries of the district of which they treat, though I must do them the justice to state that, whenever they have done this, they have always noted the localities whence such specimens have come.



CINNYRIS FULIGINOSUS.

(CARMELITE SUN-BIRD.)

Soui-manga carmelite, Aud. et Vieill. Ois. Dor. ii, p. 42, pl. 20 (1802).

Soui-manga varié, Aud. et Vieill. tom. cit. p. 43, pl. 21.

Certhia fuliginosa, Shaw, Gen. Zool. viii, p. 222 (1811); Bechst. Kurze Uebers. p. 192 (1812).

Certhia maculata, Shaw, Gen. Zool. viii, p. 223 (1811).

Cinnyris fuliginosus, Cuv. Règne Anim. p. 412 (1817); Vieill. N. Dict. d'Hist. Nat. xxxi, p. 497 (1819); Bonn. et Vieill. Enc. Méth. ii, p. 584 (1823); Less. Man. d'Orn. ii, p. 23 (1828); id. Traité d'Orn. i, p. 296 (1831); id. Descr. Mamm. et Ois. p. 271, no. 76 (1847); Bp. Consp. Av. i, p. 406, no. 7 (1850); Verr. Rev. et Mag. Zool. 1851, p. 315; Bp. Comptes Rendus, 1854, p. 265; Sharpe & Bouvier, Bull. Soc. Zool. France, p. 42 (1876); Reichenow, J. f. O. 1877, p. 25.

Cinnyris maculatus, Cuv. Règne Anim. i, p. 412 (1817); Vieill. N. Dict. d'Hist. Nat. xxxi, p. 514 (1819).

Carmelite Creeper, Lath. Gen. Hist. B. iv, p. 256 (1822).

Varied Creeper, Lath. tom. cit. p. 257.

Nectarinia fuliginosa, Drapier, Dict. Class. xv, p. 510 (1829); Jard. Mongr. Sun-birds, pp. 197, 256, pl. 14 (1842); Strickl. Contr. Orn. 1851, p. 133; Hartl. J. f. O. 1854, p. 10; Müll. J. f. O. 1855, p. 15, no. 163; Hartl. Orn. W.-Afr. p. 43 (1857); Cass. Pr. Philad. Acad. 1859, p. 35; Hartl. J. f. O. 1860, p. 136, 1861, p. 108; Bocage, Journ. Lish. 1868, p. 135; Gray, Hand-l. B. i, p. 108, no. 1331; Sharpe, Ibis, 1870, p. 478; id. P. Z. S. 1871, pp. 609, 615; id. Cat. Afr. B. p. 39, no. 362; id. P. Z. S. 1873, p. 717; Ussher, Ibis, 1874, p. 60; Reichenow, J. f. O. 1875, p. 30, 1876, p. 418.

Cinnyris aureus, Less. Descr. Mamm. et Ois. p. 271, no. 77 (1847).

Carmelita fuliginosa, Reichb. Handb. Scansoriæ, p. 296, no. 694, pl. 58, figs. 3947-48 (1854).

Nectarinia aurea, Hartl. Orn. W.-Afr. p. 44 (1857).

♂ *ad.* suprâ velutinus, chocolatio-brunneus, collo postico et interscapulio pallidioribus, alis saturatè velutino-chocolatinis: fronte chalybeâ violaceo nitente: plagâ anteculari nigrâ: tectricibus alarum minimis metallicè lilacinis: supracaudalibus metallicè lilacinis, vix bronzino-viridi adumbratis: rectricibus brunnescenti-nigris, bronzino nitentibus: gutture toto metallicè lilacino: corpore reliquo subtùs velutino-chocolatio bronzino nitente: fasciis pectoralibus magnis lætè sulfureis: subalaribus chocolatinis: remigibus infrâ bronzino-brunneis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* suprâ albicanti-brunnea, pileo, dorso postico, uropygio, et supracaudalibus saturatiùs brunneis: tectricibus alarum minimis et medianis pallidioribus dorso concoloribus: majoribus et remigibus saturatè brunneis cineraceo angustè marginatis: rectricibus saturatè brunneis, angustè albido terminatis, externis latiùs: plagâ anteculari saturatè brunneâ: facie laterali et gulæ lateribus pallidè albicanti-brunneis:

gutturæ et jugulo dilutè chocolatio-brunneis: corpore reliquo subtùs pallidè fulvescente, flavo vix tincto: hypochondriis brunneo lavatis.

Hab. in Africa occidentali.

Adult Male. Chocolate-brown, palest on the back and sides of the head and neck, and shading into darker brown on the lower back, median series of wing-coverts, and on the undersurface of the body; forehead and front of the crown steel-blue, shaded with violet; in front of the eyes black; least series of wing-coverts metallic lilac; upper tail-coverts metallic lilac, often shaded with bronzy green; remainder of the wings and the tail brownish black, glossed with reddish brown, more sparingly on the outer webs of the feathers; chin and throat metallic lilac, often glossed with steel-blue, and occasionally with a few green feathers upon the chin; pectoral tufts sulphur-yellow; under surface of the wings brownish black, with the coverts dark chocolate-brown; bill and legs black; irides dark brown. Total length 5·4 inches, culmen 0·95, wing 2·7, tail 1·9, tarsus 0·65.

Adult Female. Head, neck, and mantle brownish buff; least and median series of wing-coverts, scapulars, and lower back rather darker, and partially shaded with olive; upper tail-coverts dark brown, broadly edged with pale brown; remainder of the wings dark brown, with pale brown edges to the feathers; tail dark brown, with narrow whitish tips to the feathers, broadest on the outer ones; feathers in front of the eyes and the chin and throat dark brown; lores, sides of the throat, and the under surface of the body buff; front of the chest slightly mottled with brown; flanks, abdomen, and under tail-coverts faintly tinted with olive; under surface of the wings dark brown, with the inner margins of the quills and the coverts white, the latter slightly tinted with olive, and mottled with dark brown; bill and legs black; irides dark brown. Total length 4·8 inches, culmen 0·85, wing 2·5, tail 1·6, tarsus 0·65.

Male in full moult. Similar in plumage to the adult female.

HAB. West Africa, from Senegal to Angola.

THE Carmelite Sun-bird may be readily recognized by the brown colour of its plumage and by the metallic violet forehead. It most nearly approaches the South-African *C. amethystinus*, in which bird the plumage is nearly black, and the entire forehead and crown metallic green.

It appears to inhabit the entire West-African region, from Senegal to Angola; but is doubtless rare in the northern portion, only being known to us from Senegal and Senegambia upon the authority of M. Verreaux, while from Liberia there is a specimen in Prince Württemberg's collection. It seems to be more abundant as we approach the equator; and according to Governor Ussher, who has collected it at Cape-Coast Castle, on the river Volta, and at Lagos, it is "moderately common on the Gold Coast;" but on that portion of the coast we presume it to be migratory, at least to some extent; for neither Mr. Buckley nor myself met with it there in February and March.

I have examined the specimens collected by Mr. Crossley in the Cameroon Mountains and the Victoria Forest in January 1871, and a large series from the Gaboon, including Mr. DuChaillu's specimens from Moonda, Ogowai, and Camma rivers, from the Congo specimens collected by Mr. Petit at Landana and Chinchonxo, and Captain Sperling's specimens from Cabinda (here it has also been collected by Señor Anchieta, according to whose notes it is known to the natives by the name of "Futila").

The type of this species was collected at Malcumba by Perrein.

Mr. Cassin writes:—"The very peculiar colour given as 'fuliginous' by authors assumes a variety of shades in this species, apparently depending upon age and season. It is frequently very pale, giving the entire bird a dull brownish yellow or ochre colour; and the metallic violet of the rump is frequently wanting."

I believe that these varieties of plumage are entirely seasonal; for I have before me two specimens from the Gaboon, labelled by M. Verreaux "female" and "male in winter plumage," which are perfectly similar, and the following series:—1st, a specimen from the Volta, in which the upper parts are mottled with dark brown, especially on the wings, and with the throat metallic violet; 2nd, a specimen collected at Chinchonxo on the 22nd of May, in which the plumage is peculiarly dark, and, with the exception of the tail-coverts being only partially metallic, is in full plumage; next we have three specimens in full plumage, each varying in the depth of colour of the brown on the back of the head, neck, and mantle; no. 6 is a still paler specimen from Senegambia, which has lost the metallic colours from the bend of the wing and from the upper tail-coverts; the chest, abdomen and under tail-coverts are similar to those parts in the female, only that they are slightly mottled with brown; no. 7, from the Gaboon, only differs from the last in the metallic forehead being replaced by dark brown feathers, the next stage to this being the "male in winter plumage" with which he began.

From this series it appears to me that the bird has only one actual moult in the year, when it abruptly assumes the dark brown feathers, and that afterwards the colours simply fade away, so that it is rather the exception to meet with two specimens in exactly the same plumage.

The specimens here figured and described are from the Gaboon on the authority of M. Verreaux, and formed part of Mr. Sharpe's collection, now in the British Museum.



CINNYRIS ANGOLENSIS.

(ANGOLA SUN-BIRD.)

?*Cinnyris rubescens*, Vicill. N. Dict. d'Hist. Nat. xxxi, p. 506 (1819); Bonn. et Vieill. Enc. Méth. p. 593 (1823); Less. Man. d'Orn. ii, p. 61 (1828); Bp. Consp. Av. i, p. 406, no. 10 (1850).

?*Nectarinia rubescens*, Drapiez, Dict. Class. xv, p. 512 (1829); Jard. Monogr. Sun-birds, p. 274 (1842); Hartl. J. f. O. 1854, p. 10; Müll. J. f. O. 1855, p. 14; Hartl. Orn. W. Afr. p. 49 (1857); Gray, Hand-l. B. i, p. 107, no. 1297 (1869).

Cinnyris angolensis, Less. Traité d'Orn. p. 295, no. 15 (1831); Pucheran, Rev. et Mag. Zool. 1853, p. 486; Hartl. J. f. O. 1855, p. 423.

Nectarinia strangeri, Jard. Ann. Nat. Hist. x, p. 187, pl. 13 (1842); id. Monogr. Sun-birds, pp. 198, 257 (1842); Jard. & Selby, Ill. Orn. N. S. pl. 48 (1842); Allen & Thomson, Exped. Niger, ii, App. p. 501 (1848); Verr. Rev. et Mag. Zool. 1851, p. 313; Hartl. J. f. O. 1854, p. 10; Müll. J. f. O. 1855, p. 15.

Cinnyris strangeri, Bp. Consp. Av. i, p. 406, no. 8 (1850); id. Comptes Rendus, 1854, p. 265.

Chalcomitra strangeri, Reichb. Handb. Scansoriæ, p. 280, no. 647, pl. 568, fig. 3875 (1854).

Nectarinia angolensis, Hartl. Orn. W. Afr. pp. 45, 270 (1857); Cass. Pr. Philad. Acad. 1859, p. 35; Hartl. & Monteiro, P. Z. S. 1860, p. 110; Hartl. J. f. O. 1860, p. 136; id. J. f. O. 1861, p. 108; Gray, Hand-l. B. i, p. 107, no. 1311 (1869); Sharpe, P. Z. S. 1871, pp. 609, 615; id. Cat. Afr. B. p. 39, no. 363 (1871); Reichenow, J. f. O. 1875, p. 30; Bouvier, Cat. Ois. Marche, p. 13 (1875).

♂ *ad.* suprâ velutino-brunneus, alis caudâque dorso concoloribus et bronzino nitentibus: loris, fronte basali et plumis anteoocularibus velutino-nigris: fronte metallicè viridi, postea chalybeâ, vertice medio metallicè lilacino: fasciâ mystaculi chalybeo-viridi: gutture metallicè olivascens-viridi, fasciâ marginante jugulari metallicè lilacinâ, plumis scarlatino apicatis: corpore reliquo subtùs velutino-brunneo: rostro et pedibus nigris: iride saturatè brunneâ.

♀ sordidè chocolatino-brunnea, remigibus vix pallidioribus brunneo marginatis: rectricibus brunneis, externis angustè ad apicem pallidioribus vix albidis: fronte nigricantiore: loris et fasciâ superciliari fusciscentibus: regione paroticiâ chokolatinâ: subtùs fulvescens, juguli et pectoris plumis brunneis fulvido marginatis, quasi marmoratis: hypochondriis et subcaudalibus longitudinaliter brunneo notatis.

Hab. in Africâ occidentali.

Adult Male. Dark brown with a slight bronzy gloss; forehead and in front of the eyes black; front half of the crown metallic emerald-green with the back half or occiput metallic lilac, these colours separated by a few steel-blue feathers; loreal band metallic emerald-green partially shaded with blue; chin black; throat metallic green of a golden or olive shade, margined by a very narrow metallic violet collar, the feathers of which are partially tipped with scarlet; bill and legs black; irides dark brown. Total length 4·8 inches, culmen 0·75, wing 2·6, tail 1·7, tarsus 0·6.

Adult Female. Upper parts and the sides of the head brown, rather darker towards the forehead; a partial buff eyebrow; wings and tail dark coppery brown with narrow paler edges to the feathers, and a few of the outer tail-feathers with very narrow pale ends; underparts buff; throat, front of the chest, flanks, and under tail-coverts mottled with brown, owing to the centres of the feathers being of that colour; under surface of the wings coppery brown with pale margins to the inner webs of the quills, and the coverts mottled with white; bill and legs black; irides dark brown. Total length 4.2 inches, culmen 0.7, wing 2.4, tail 1.6, tarsus 0.6.

Young Male. Similar in plumage to the adult female, excepting that the underparts are yellow, chin and throat black and the chest mottled with black, which forms partial bars; base of the lower mandible pale brown.

HAB. West Africa.

THE Angola Sun-bird belongs to the brown-coloured African group to which Reichenbach applied the generic title of *Chalcomitra*. Its best-marked specific character is the metallic green throat, which at once separates it from all the other nearly allied species. In other respects it most nearly approaches *C. kirkii* from Eastern Africa.

It inhabits West Africa from Cameroons to Angola, and has been met with on Fernando Po, where it was shot by Dr. Thomson during the Niger expedition, and was named by Sir W. Jardine after Dr. Strange, the geologist to that expedition; here it was found specially resorting to the Papaw (*Papaya carica*) while in flower, attracted thither by its sweet juice, which is a favourite food of these and the other Sun-birds.

From the Gold Coast Mr. Sharpe has recorded a specimen in his lists of the birds of Fantee; but I am informed by him that the species in question was really *C. adelberti*, and was only included by a *lapsus calami*.

Along the coast southward from the Niger it has been collected by Mr. Crossley in the Cameroons. Its head quarters appear to be the Gaboon district, where it is by no means uncommon: here it has been procured by Du Chaillu on the banks of the Muni, Moonda, and Camma rivers, and by Marche and De Compiègne on the Ogowè.

Lesson's type came from Angola; and more recently it has been collected there by Mr. Monteiro at Bembe. We have examined a large series, and find the specimens perfectly constant throughout its range.

A male before us, in apparently full moult, is almost similar in plumage to the adult female; in the next stage the feathers on the throat become black; they then gradually assume the metallic portions of the plumage; and lastly the breast becomes brown.

The *Cinnyris rubescens*, Vieill., was discovered by Perrein in the Congo district and, we have little doubt, should be referred to this species; yet as it has failed to be recognized by more recent naturalists from Vieillot's description, it appears to us a good reason for considering that description insufficiently accurate. As the type specimen no longer exists, we have therefore employed Lesson's title, by which it is generally known to naturalists of the present day.

The specimens from which our description and illustration are taken were in Mr. Sharpe's collection, and now belong to our national Museum.



CINNYRIS ADELBERTI.

(BUFF-THROATED SUN-BIRD.)

Cinnyris adelberti, Gerv. Mag. Zool. iii, pl. 19 (1834).

Nectarinia eboensis, Jard. Monogr. Sun-birds, p. 244 (1842).

Nectarinia adelberti, Jard. tom. cit. p. 257, pl. 30; Jard. & Selby, Ill. Orn. 1842, pl. 49; Bp. Consp. Av. i, p. 404, no. 4; Hartl. J. f. O. 1854, p. 10, no. 104; Müll. J. f. O. 1855, p. 15, no. 159; Hartl. Orn.-W. Afr. p. 44 (1857); id. J. f. O. 1861, p. 108; Gray, Hand-l. B. i, p. 107, no. 1310 (1869); Sharpe, Cat. Afr. B. p. 37, no. 350 (1871); Shelley & Buckley, Ibis, 1872, p. 287; Reichenow, J. f. O. 1873, p. 217; Ussher, Ibis, 1874, p. 58; Reichenow, J. f. O. 1875, p. 30.

Cinnyris eboensis, Allen & Thoms. Exped. Niger, ii, App. p. 502 (1848).

Chalconitra adelberti, Reichb. Handb. Scansoriæ, p. 279, no. 646, pl. 568, figs. 3876-77 (1854).

Nectarinia angolensis, Sharpe, Ibis, 1869, p. 383; 1870, p. 473.

♂ *ad.* suprâ velutino-niger, scapularibus magis brunnescentibus: tectricibus alarum ochrascenti-cervinis: remigibus saturatè brunneis extûs ochrascenti-castaneo marginatis: caudâ nigrâ: fronte et vertice metallicè smaragdinis: loris et facie laterali, mento et gulâ summâ nigris, genis anticis smaragdinis: gulâ imâ et jugulo ochrascenti-fulvis ad latera colli dilatatis: fasciâ distinctâ præpectoralî nigrâ: corpore reliquo subtûs saturatè ochrascenti-castaneo, subalaribus pallidioribus et potiùs scapularibus concoloribus: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* suprâ olivascens, pilco vix obscuriore: tectricibus alarum remigibusque bronzino-brunneis, olivascenti-flavo limbatis: rectricibus saturatè brunneis, versûs apicem pallidioribus: subtûs fulvescenti-flavâ, gulâ cano lavatâ: genis pallidiùs flavis: lineâ superciliari flavidâ indistinctâ: pectore marmorato, plumis medialiter brunneo notatis: subalaribus albis, medialiter brunneis flavo lavatis: remigibus saturatè brunneis, intûs albo marginatis.

Hab. in Africâ occidentali.

Adult Male. Head and back of the neck black, shading into brownish black on the back and tail; forehead, crown, and lores metallic emerald-green; scapulars rather paler than the back and shaded with rufous; wings brownish black, with the least and median series of wing-coverts and broad edges to the greater coverts fawn-colour; the primary-coverts and quills more narrowly edged with rufous brown; chin and upper half of the throat black, remainder of the throat rich buff margined by a collar of black feathers; remainder of the body and the under tail-coverts bright chestnut; under surface of the wings bronzy brown, with the coverts fawn-colour; bill and legs black; irides dark brown. Total length 4 inches, culmen 0·7, wing 2·3, tail 1·5, tarsus 0·55.

Adult Female. Upper parts olive; wings and tail dark bronzy brown; the least series of wing-coverts and the margins of the greater coverts and quills olive-yellow; tail-feathers partially edged with the same

colour and with narrow paler ends; underparts buff, palest on the upper half of the throat, and shaded with olive on the lower throat and flanks, and with rather indistinct olive-brown centres to the feathers of the crop and front of the chest; under surface of the wings dark brown with the inner margins of the quills and the coverts white, the latter shaded with yellow and with dark-brown centres; bill and legs black; irides dark brown. Total length 4 inches, culmen 0·7, wing 2·25, tail 1·4, tarsus 0·55.

Male in moult. Upper parts olive-brown; least and median series of wing-coverts and the margins of the quills and tail-feathers olive-brown; remainder of the wings and tail bronzy brown; the greater series of wing-coverts edged with buffish brown, and the tail-feathers with narrow pale ends; crown and lores mottled with metallic-green feathers, and the sides and back of the head and the collar with black feathers; chin and upper portion of the throat black; remainder of the underparts buff, with a few chestnut-brown feathers on the breast.

HAB. West Africa.

THIS well-marked species may be easily recognized by the upper half of the throat being black, the lower half buff, and the breast rich chestnut; the metallic portions of the plumage are confined to the crown and lores.

It is a native of the northern half of the West-African region, where it ranges from Senegal to the Niger.

The type was collected at Tinan, in Senegambia, and was named by M. Gervais after M. Adelbert, its discoverer.

On the Gold Coast it has been collected by Mr. Blissett at Elmina; and Governor Ussher writes:—"This pretty Sun-bird is not very common in Fantee, except at certain seasons of the year, when it frequents the large flowering trees of the forest in company with many other species."

It appears to be essentially a woodland species; for Mr. Buckley and myself never met with it either in the immediate vicinity of Cape-Coast Castle, where large trees are rare, nor at Accra, although we found it to be perhaps the most abundant species of Sun-bird around the large flowering trees at Abrobonko (inland from Cape-Coast Castle), and at Abouri, in the Agnapiim district, where, in February, we collected a large series, in almost every stage of plumage, from the bird in full moult to the breeding-dress.

The small size and active habits of this species often render it very difficult to follow with the eye as it flits round the thickly clustered flowers in the upper branches of the high trees, often hiding itself entirely in the chalice of the large tulip-shaped scarlet flowers of the *Bombax*.

Reichenow also records it from Abouri, and Hartlaub from Ashantee, upon the authority of a specimen in the Bremen Museum. In the Niger district it has been collected at Eboe and at Aboh by Mr. Thomson, who considered it a very scarce bird. As we find no further information with regard to this species, we presume that its head quarters are the Gold Coast, where, however, it is to some extent migratory, arriving there probably from the interior of Ashantee.

One of our specimens, collected at Abouri on the 22nd of February, and almost in full

plumage, has the usual fawn-coloured portions of the wings and scapulars dark chocolate-brown: this appears to be merely an individual variation; for on the same day I procured another male, in apparently precisely the same stage of moult, in which these parts are similar to the adult above described.

The adult male and female from which my figures and descriptions have been taken, were collected by myself on the Gold Coast; and the male in moult was also procured there for Mr. Sharpe, and is now in the British Museum.



CINNYRIS FUSCUS.

(WHITE-VENTED SUN-BIRD.)

Le Sucrier Namaquois ou à caleçon blanc, Levaill. Ois. d'Afr. vi. p. 168, pl. 296 (1808); Sundev. Crit. om Levaill. p. 57 (1857).

Cinnyris fuscus, Vieill. N. Dict. d'Hist. Nat. xxxi. p. 506 (1819); id. Enc. Méth. ii. p. 594 (1823); Less. Man. d'Orn. ii. p. 60 (1828); Bp. Consp. Av. i. p. 407. no. 28 (1850); Gurney, in Andersson, B. Damara Land, p. 71 (1872); Sharpe, ed. Layard, B. S. Afr. (1877).

Nectarinia fusca, Jard. Monogr. Sun-birds, pp. 183, 252, pl. 8 (1843); Strickl. & Sclat. Contr. Orn. 1852, p. 153; Müll. J. f. O. 1855, p. 13. no. 138; Hartl. Orn. W. Afr. p. 51. no. 146 (1857); id. J. f. O. 1861, p. 109; Layard, B. S. Afr. p. 79. no. 131 (1867); id. Ibis, 1868, p. 244; Chapman, Trav. S. Afr. ii. App. p. 407 (1868); Gray, Hand-l. B. i. p. 106. no. 1284 (1869); Sharpe, Cat. Afr. B. p. 40. no. 371 (1871).

Cinnyricincla fusca, Reichb. Handb. Scansoriæ, pp. 295, 306. nos. 692, 718, pl. 580. figs. 3942-44 (1854).

Adelina fusca, Bp. Comptes Rendus, 1854, p. 265.

♂ *suprà nigricanti-brunneus, vix bronzino nitens: tectricibus alarum medianis et majoribus remigibusque saturatè brunneis latè pallidiùs marginatis: supracaudalibus caudâque nigris indigotico lavatis: gutture et pectore nigris, plumis jugularibus metallicè bronzino marginatis: fasciis pectoralibus lætè aurantiacis: abdomine et subcaudalibus albis: tibiis et subalaribus saturatè brunneis: rostro et pedibus nigris: iride saturatè brunneâ.*

♀ *suprà pallidè brunnea: lineâ superciliari latâ pallidâ: remigibus rectricibusque saturatè brunneis pallidiùs marginatis, rectrice extimâ angustè albo marginatâ: subtùs cinerascanti-albida: tibiis brunneis: subalaribus albis.*

Hab. in parte occidentali Africæ meridionalis.

Adult Male. Upper parts blackish brown, the feathers, including the least series of wing-coverts, broadly edged with metallic violet, green, or coppery bronze; quills and the greater and median series of wing-coverts dark brown with broad pale brown edges; upper tail-coverts and tail black, glossed with blue; sides of the head black; the ear-coverts narrowly edged with bronze; front of the neck and the breast black, with the feathers on the throat and crop broadly edged with violet shaded coppery bronze; pectoral tufts bright orange; abdomen and under tail-coverts white; thighs and under wing-coverts dark brown; bill and legs black; irides dark brown. Total length 4·4 inches, culmen 0·85, wing 2·3, tail 1·65, tarsus 0·7.

Adult Female. Upper parts, as well as the sides of the head, light brown; a broad pale eyebrow; wings and tail dark brown, with pale edges to the feathers; the outer tail-feather narrowly edged with white; underparts ashy white; thighs light brown; under surface of the wings brown with pale inner margins to the quills, and the coverts white; bill and legs black; irides dark brown. Total length 4·3 inches, culmen 0·7, wing 2·1, tail 1·7, tarsus 0·65.

Male in partial moult. Upper parts brown, partially glossed with bronzy green; centre of the back slightly mottled with white; upper tail-coverts and tail black, the edges of the feathers glossed with steel-blue; the outer tail-feather narrowly edged with white; underparts white, with the chest and a broad band down the throat black, glossed on the lower throat with bronzy green; pectoral tufts orange-red; thighs dark brown; under wing-coverts brownish black.

HAB. South-western Africa.

THE present species is distinguished by its general blackish-brown colouring, only partially glossed with metallic hues, and by its white abdomen and under tail-coverts.

It inhabits the western portion of South Africa, and was first discovered by Levillant in Great Namaqua Land; it is also common in Damara Land, and has been sent by Mr. Andersson from Little Namaqua Land, and extends its range eastward to Hope Town and Colesberg.

According to Mr. Andersson (B. Damara Land, p. 71) this is "the commonest Sun-bird in Damara and Great Namaqua Lands, where it is really abundant, especially towards the sea-coast. The scantier and more dreary the vegetation the more common is this bird; and though unattractive in dress, it helps to enliven the monotonous solitudes which it frequents by its activity and pleasant subdued warbling chirp. The male assumes a somewhat more attractive garb during the breeding-season than at other times of the year, when it resembles the female, whose colouring is of the most sombre description. Levillant tells us that this bird nests in the hollows of trees; but this differs from my experience, as I have always found its nest suspended from the branch of some low acacia. The nest is chiefly composed of soft grasses and the fine inner bark of trees, and is lined with a quantity of feathers. I found the young just fledged on April 3rd."

Mr. Layard (Ibis, 1868, p. 244) informs us:—"This plain-coloured Sun-bird I never saw till Mr. Orllepp forwarded several individuals from Colesberg. Nest domed, suspended, composed of wool and fibres, and lined with feathers and goat's hair. The eggs, three in number, are so unlike those of any Sun-bird with which I am acquainted, that, had I not confidence in Mr. Orllepp's care and discrimination, coupled with his description of the nest, I should have concluded they did not belong to this species. They are white, spotted with intensely dark purple-brown and pale purple spots, chiefly forming a close-set ring, near the obtuse end. Axis $6\frac{1}{2}$ ''' , diam. $4\frac{1}{2}$ ''' ."

The descriptions which I have given of the adult female and of the male in partial moult are taken from specimens in the British Museum, and formerly in Mr. Sharpe's collection. The former was collected by Mr. Andersson in Little Namaqua Land, the latter by Mr. Atmore at Hope Town.

It is recorded by Dr. Hartlaub (Orn. W.Afr. p. 51) from Angola, on the authority of a specimen in the Paris Museum, which I cannot but suspect has been wrongly labelled.



CINNYRIS VERREAUXI.

(MOUSE-COLOURED SUN-BIRD.)

Cinnyris verroxii, Smith, S.-Afr. Quart. Journ. 1831, p. 13; id. Ill. Zool. S. Afr., Aves, pl. 57 (1839).

Nectarinia verroxii, Jard. Monogr. Sun-birds, pp. 185, 253, pl. 9 (1843); Layard, B. S. Afr. p. 76. no. 124 (1867); Gray, Hand-l. B. i. p. 108. no. 1322 (1869).

Cinnyris verreauxi, Bp. Consp. Av. i. p. 407. no. 25 (1850).

Adelinus verreauxi, Bp. Compt. Rend. 1854, p. 265.

Elæocerthia verroxi, Reich. Handb. Scansoriæ, p. 292, pl. 578. figs. 3932-33 (1854).

Nectarinia verreauxi, Müll. J. f. O. 1855, p. 13. no. 139; Gurney, Ibis, 1864, p. 348; Finsch, J. f. O. 1867, p. 246; Finsch & Hartl. Vög. Ost-Afr. p. 861 (1870); Sharpe, Cat. Afr. B. p. 37. no. 351; Shelley, Ibis, 1875, p. 70.

♂ *ad.* suprâ olivascens, cinerascenti adumbratus, plumis saturatè metallicè viridescenti lavatis: remigibus et tectricibus alarum majoribus saturatè brunneis pallidiùs marginatis: caudâ vix nigrâ, plumis olivascenti-brunneo marginatis: maculâ anteoculari nigrâ: subtùs pallidè cinerascens, abdomine et subcaudalibus olivaceo lavato: fasciis pectoralibus lætè scarlatinis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* haud à mare distinguenda.

Hab. in parte orientali Africæ meridionalis.

Adult Male. Upper parts olive shaded with ashy brown; the feathers, including the least and median series of wing-coverts, broadly edged with a deep metallic green gloss; the quills and greater series of wing-coverts dark brown, the feathers narrowly edged with paler brown, of an olive shade on the quills; tail nearly black with slightly paler ends to the feathers only visible from beneath, and with narrow olive-brown margins; a small nearly black patch in front of the eye; underparts pale ashy brown, tinted with olive on the abdomen and under tail-coverts; pectoral tufts bright scarlet; under wing-coverts and inner margins of the quills white, the former shaded with olive; bill and legs black; irides dark brown; gape scarlet. Total length 5·2 inches, culmen 0·9, wing 2·45, tail 2·0, tarsus 0·7.

Adult Female. Similar in plumage to the male.

HAB. South-eastern Africa—Kaffraria and Natal.

THIS very local South-African form may be readily distinguished by the peculiar colouring of its plumage, the upper parts being of an olive-shaded ashy brown, with only the ends of the feathers glossed with metallic green; the pectoral tufts are bright scarlet.

In its general form, especially of its bill and tail, it is closely allied to the members of the "dark-brown" group, which includes *C. gutturalis* and *C. amethystinus*, while in its olive-colouring it appears to connect that division with the "olive" group through *C. olivaceus*, from which,

however, it differs in having the tail perfectly square ; and I consider that it should be separated from both, and placed in what I shall term the “submetallic” group.

The groups into which I arrange the numerous members of the genus *Cinnyris* have the advantage of indicating the natural affinities of these Sun-birds, but cannot properly be recognized by generic titles, being chiefly founded upon coloration. Most of these groups have been regarded by some naturalists as of generic value: for instance, the present species is the type of Bonaparte's genus *Adelinus*, in which he includes *C. fuscus*, *C. obscurus*, and *C. olivaceus*; the two latter, however, do not belong to this section, but to the “olive” group (*Elæocerthia* of Reichenbach), which may be characterized by the more rounded form of the tail.

This species was first described by Sir Andrew Smith from a specimen presented to him by M. Verreaux, from Kaffraria; and, as far as reliable information goes, it is confined to that district and to Natal. It is mentioned by Drs. Finsch and Hartlaub (Vög. Ost-Afr. p. 862) as coming from the Zambesi, upon the authority of Mr. Sharpe's collection; but the only specimen in that gentleman's cabinet is simply labelled “South Africa.” Lord Walden possesses a specimen nominally from the Zambesi, but not resting upon good authority.

Sir Andrew Smith (Ill. S.-Afr. Zool. pl. 57) remarks:—“Only a very few specimens of this bird have yet been found in South Africa, and none, as far as I know, within the limits of Cape colony. Kafirland, and the country eastward of it, towards Port Natal, furnished the specimens we possess. Like the other species of the group, it feeds upon small insects; and these it collects partly from the branches and leaves of brushwood and dwarf trees, and partly from flowers; but, as far as my experience goes, I should be inclined to consider them as giving a preference to insects. In those I examined I found the bulk of the contents of the stomach to be insects, though at the same time each contained more or less of the saccharine juice.”

Mr. Gurney (Ibis, 1864, p. 348) publishes the following notes made by Mr. Ayres in Natal:—“Their food consists of nectar and small insects. I have only seen these Sun-birds in the coast bush, and not so plentifully as most other species of *Nectarinia*. From what I could see, I think their habits resemble those of *Nectarinia afra*.”

At Durban I had occasional opportunities of watching this species. It appears to be very local, only being found by me in the dense bush which surrounds the town, where it is usually to be seen in pairs fluttering about the edges of the creepers; and although even here a rare bird, it is not in the least shy. Mr. T. L. Ayres, who has been collecting for me at Pinetown, ten miles inland from Durban, has also procured specimens. In March I was informed by one of the natives that he had taken a nest of this species, which he called the “Mouse-coloured Sun-bird,” by which name it appears to be best known to the colonists. The nest was, he told me, suspended from the outer twigs of a bush, and very similar in structure to that of *Anthodiata collaris*, which he brought me a few days later; that is composed of dried grass and lined with feathers and horsehair. In its habit of frequenting the low thick bush it differs from *C. olivaceus*, which I only met with in the large scattered trees in the more open country.



CINNYRIS OLIVACEUS.

(SOUTH-AFRICAN OLIVE SUN-BIRD.)

Cinnyris olivacea, Smith, Ill. S. Afr. Zool. in text to pl. 57 (1839); Bp. Consp. Av. i. p. 407. no. 27 (1850).

Nectarinia olivacea, Jard. Monogr. Sun-birds, pp. 186, 253 (1843); Licht. Nomencl. p. 55 (1854); Müll. J. f. O. 1855, p. 13. no. 140; Gurney, Ibis, 1864, p. 347; Layard, B. S. Afr. p. 78. no. 129 (1867); Gray, Hand-l. B. i. p. 108. no. 1320 (1869); Finsch & Hartl. Vög. Ost-Afr. p. 225 (1870); Sharpe, Cat. Afr. B. p. 38. no. 352 (1871); Shelley, Ibis, 1875, p. 70.

Elæocerthia olivacea, Reichb. Handb. Scansoriæ, p. 292. no. 683 (1854).

♂ *ad.* suprâ olivaceus, pilco et capitis lateribus saturationibus, dorso postico et uropygio magis flavicantibus: remigibus rectricibusque saturatè brunneis, flavicanti-olivaceo limbatis, his pallidiùs apicatis: subtùs pallidè flavicanti-olivaceus: fasciis pectoralibus lætè flavis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* haud à mare distinguenda.

HAB. in parte meridionali Africæ australis.

Adult Male. Upper parts olive, darkest on the crown and sides of the head, and slightly yellower towards the upper tail-coverts; wings and tail dark brown, the feathers edged with yellowish olive, the tail-feathers with pale ends, most visible on the underside; underparts pale yellowish olive; pectoral tufts bright yellow; bill and legs black; irides dark brown. Total length 5·5 inches, culmen 1·1, wing 2·7, tail 2·5, tarsus 0·65.

Adult Female. Similar in plumage to the male. Total length 5 inches, culmen 1·0, wing 2·4, tail 2·0, tarsus 0·65.

HAB. South-eastern Africa, from Kaffraria to Mosambique.

THE South-African Olive Sun-bird is one of the few examples of this genus which possess no metallic plumes. It is very closely allied in this respect, as well as in its form and size, to *C. obscurus* of the west coast, from which, however, it is to be distinguished by the deeper shade of its colouring, and especially by the richer yellow of the pectoral tufts, which are present in both sexes.

It is a rare bird in collections, owing, no doubt, to its very limited distribution; for it is only found in South-eastern Africa, ranging from Kaffraria (where it was first discovered by Sir Andrew Smith) to South Mosambique, where it has been procured by Dr. Peters during his voyage, as we are informed by Drs. Finsch and Hartlaub (Vög. Ost-Afr. p. 225).

In Natal they frequent the coast region, probably on account of its being more wooded

than the interior. At Durban I met with them rarely; but at Pinetown in February and March they were far more common, being usually seen in pairs amongst the tall trees which grow by the sides of the watercourses; they appear to prefer the higher branches to the low tangled brushwood. According to Mr. Ayres's notes (Ibis, 1864, p. 347), "the birds are common on the coast for some distance inland; they are particularly fond of shady banana groves, taking the nectar from the long drooping flowers of the plant, and chasing one another about with great pertinacity. The plumage of the female is not so bright as that of the male."

Out of the many specimens of this bird which I possess, and which have been carefully sexed, I can discover no difference whatever in the plumage. A female sent to me from Pinetown, and represented in the accompanying illustration, possesses a rusty shaded yellow patch on the middle of the throat, which is not observable in my other specimens, and which appears to indicate age in this individual.

The "olive" group, to which the present species belongs, is that which most nearly connects the genus *Cinnyris* with *Anthreptes*. It is essentially an African group, its nearest eastern ally being *Anthreptes hypogrammica*, a form to which Reichenbach has applied the generic title of *Hypogrammica*.



CINNYRIS OBSCURUS.

(BUFF-BREASTED OLIVE SUN-BIRD.)

Nectarinia obscura, Jard. Monogr. Sun-birds, p. 253 (1842); Jard. & Selby, Ill. Orn. 1842, pl. 51; Jard. Contr. Orn. 1851; Hartl. J. f. O. 1854, p. 11, no. 112; Müll. J. f. O. 1855, p. 16, no. 178; Hartl. Orn. W.-Afr. pp. 50, 271 (1857); id. J. f. O. 1861, p. 109; Gray, Hand-l. B. i, p. 108, no. 1321 (1869); Sharpe, Ibis, 1870, p. 478; id. Cat. Afr. B. p. 38, no. 353 (1871); Shelley & Buckley, Ibis, 1872, p. 287; Reichenow, J. f. O. 1875, p. 31; Bouvier, Cat. Ois. Marche, p. 13 (1876).

Cinnyris obscurus, Bp. Consp. Av. i, p. 407, no. 26 (1850).

Adelina obscura, Bp. Comptes Rendus, 1854, p. 265.

Elanocerthia obscura, Reichb. Handb. Scansoriæ, p. 293, no. 684, pl. 578, figs. 3935-36 (1854).

Nectarinia fraseri, Dohrn, P. Z. S. 1866, p. 326.

♂ *ad.* suprâ olivascenti-virescens, pileo obscuriore, tectricibus alarum minimis dorso concoloribus: majoribus remigibusque brunneis extûs olivascenti-flavo limbatis: rectricibus brunneis, olivascenti-flavo marginatis et obscurè pallidiore brunneo terminatis: facie laterali sordidè olivaceo-viridi, regione paroticâ angustissimè albido striolatâ: plagâ anteculari flavidâ: corpore subtûs pallidè cineraceo, flavido lavato, hypochondriis et subcandalibus olivascenti-viridibus: fasciis pectoralibus lætè flavis: subalaribus albis: remigibus infrâ brunneis intûs albido marginatis: rostro et pedibus brunnescenti-nigris, mandibulâ versus basin fulvescente: iride saturatè brunneâ.

♀ *ad.* mari similis.

Juv. similis adultis, sed fasciis pectoralibus nullis et corpore subtûs flavo distinguendus.

Hab. in Africâ occidentali.

Adult Female. Upper parts olive, darkest on the crown, and slightly yellower towards the upper tail-coverts; sides of the head more ashy olive, with small whitish centres to the feathers of the cheeks, ear-coverts, and eyebrow; feathers in front of the eyes buff; wings and tail dark brown, each feather broadly margined with olive, which is of a yellow shade on the quills and tail; tail-feathers with pale ends, most visible on the underside; underparts buffish white, shaded with yellowish olive on the thighs, sides of the abdomen, and on the under tail-coverts; pectoral tufts bright sulphur-yellow; under surface of the wings dark brown, with the inner margins of the quills and the coverts white; bill and legs brownish black, the lower mandible fading into buff on the basal half; irides dark brown. Total length 5·5 inches, culmen 0·9, wing 2·5, tail 2, tarsus 0·65.

Adult Male. Similar in plumage to the adult female.

Immature bird. Differs only from the adult in the absence of pectoral tufts, in the yellower colour of the underparts, especially of the lower throat.

HAB. West Africa.

THIS Sun-bird may be recognized by the entire absence of all metallic colours and by the bright sulphur-yellow pectoral tufts, which are present in the adult of both sexes. It is most nearly allied to the South-African *C. olivaceus*, from which species it is distinguished by the underparts being whitish, the pectoral tufts much paler yellow, and the basal half of the lower mandible buff.

It is a native of West Africa, where it ranges from the Gold Coast to Angola, and is found on Prince's Island and Fernando Po. On the latter island the type was collected by Fraser, who also procured it from the Niger district; and from Prince's Island we have examined specimens collected by Ingall, Keulemans, and Petit; the latter specimen, which is in my own collection, is labelled "male," while the female, which I have here figured and described, was also collected by Petit at Bonny.

Mr. Keulemans writes to me, that when he was in Prince's Island he met with this species "only in the dense forests, where, owing possibly to the thickness of the undergrowth and creepers, it was rarely to be seen. The high trees in the more retired parts of the forests are its favourite haunts; and it is seldom observed near the ground, excepting when the aroma of the ripening fruits attract it towards the plantations, where it may at such times be occasionally met with around the banana and papaya plants. Its song, which it constantly utters, is totally unlike that of *C. hartlaubii*, being a more guttural sound, like 'hoo-hoo-hoo' rapidly repeated; but its call-note is a soft 'foo-cet,' and can hardly be distinguished from that of *C. hartlaubii*.

"It is known on the island by the name of 'Siwie-barbeiro grande.'"

On the Gold Coast it is a very common species, but apparently more abundant in the dense forests of Denkera than towards Cape-coast Castle. While in the Aguapim district I met with it along with many other species in the tall flowering trees; but as we only obtained a single specimen at Abouri, I presume that it is not so abundant there as many of the other species of Sun-birds.

We have examined specimens in the British Museum from the Camaroons and the Gaboon, in which latter locality it has been collected by Du Chaillu on the Muni and Camma rivers, and by Marche and De Compiègne on the Ogowè. From Angola it was first recorded by Verreaux, and has since been collected there by Mr. Hamilton.

The immature bird above figured and described was collected for Mr. Sharpe in Fantee, and is now in the British Museum with the rest of his Sun-birds.



CINNYRIS DUSSUMIERI.

(SEYCHELLES SUN-BIRD.)

Nectarinia dussumieri, Hartl. J. f. O. 1860, p. 340; E. Newton, P. Z. S. 1867, p. 344; id. Ibis, 1867, pp. 336, 341, 359.

Nectarinia seychellensis, Hartl. Orn. Madag. p. 35 (1861); Gray, Hand-l. B. i. p. 107. no. 1302.

♂ *ad.* suprâ saturatè brunneus, plumis olivaceo marginatis, alis dorso concoloribus: caudâ brunnescenti-nigrâ, albo terminatâ: subtùs olivaceus cinerascens lavatus: gutture saturatè metallicè viridi: facie laterali pilcoque concoloribus: fasciis pectoralibus aurantiaco-rubris, basaliter sulfureis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *mari* similis, sed fasciis pectoralibus nullis et gutture pectoreque concoloribus distinguenda.

Hab. in insulis Seychellensibus.

Adult Male. Upper parts, including the wings, dark brown, with the edges of the feathers shaded with olive; tail brownish black tipped with white, most broadly so towards the outer feathers; underparts olive-shaded ashy brown; chin and throat deep metallic bottle-green; sides of the head the same colour as the back; pectoral tufts orange-red inclining to sulphur-yellow at their base; under surface of the wings dark brown, with the coverts and the inner margins of the quills nearly white; bill and legs black; irides dark brown. Total length 4·6 inches, culmen 0·9, wing 2·4, tail 1·8, tarsus 0·7.

Adult Female. Similar in plumage to the adult male, excepting that the chin and throat are of the same colour as the breast, and that it possesses no pectoral tufts.

Male in moult. Similar in plumage to the female, or with the throat metallic, but with no pectoral tufts.

HAB. Seychelles Islands.

THE Seychelles Sun-bird belongs to the "olive" group, and is most nearly allied to the West-African *C. hartlaubi*, which it resembles in having the metallic portion of its plumage confined to the throat, and from which it differs in being of a more dusky olive-colour, and in possessing, during the breeding-season, bright orange pectoral tufts.

This species is confined to the Seychelles, where it appears to be common to all the islands of that group. It was first described by Dr. Hartlaub in honour of M. Dussumier, who sent two specimens to the Paris Museum.

Some valuable information respecting this little-known bird is given by Mr. Edward Newton (Ibis, 1867, p. 341):—"The 'Colibri' (*Nectarinia dussumieri*) I found to be very common; I saw it at Mahé, Praslin, Ladigue, Félicité, Marianne, and Silhouette. When I first arrived the males I shot did not show any yellow under the wing; but at Marianne, on 12th February, I obtained two males which had the bright flame-coloured axillary tuft fully developed. At first I thought

these were of a different species; but on my return to Praslin and Mahé, and shooting several specimens, I found that all the males had then assumed their full plumage, which they evidently had not done when I shot my first specimen on the 25th January. The axillary tufts, so far as my experience goes, are not visible in the living bird, the feathers of the breast covering them entirely; and I never observed them as Mr. Tristram did those of the allied species, *N. osea* (Ibis, 1865, p. 74), when the bird was singing. In habits the *Nectariniæ* resemble the *Certhiolæ* more than any other group with which I am acquainted—always restless, hanging head downwards to get at an insect on the under surface of a leaf, then flying off to a flower (not darting like a Humming-bird), and back again to the same tree. The male constantly sings from the top of a tree or from a dead and exposed branch. The song is hurried, but not unlike that of a Goldfinch. The ordinary call is one note quickly repeated three or four times. Mr. Nevill had two nests brought to him—one containing a young one almost fully fledged, the other an egg; the nests were exactly like others of the family which have been described (Ibis, 1863, p. 302, and 1865, p. 76). The egg is greenish white, freckled, suffused, and blotched with umber-brown chiefly at the larger end. It is 0·75 inch in length, and 0·41 in breadth.”

In a paper by the same author in the ‘Proceedings’ for the same year, *Nectarinia seychelensis* and *N. dussumieri* were entered as distinct species: this, I am informed, was a printer’s error.



CINNYRIS HARTLAUBI.

(HARTLAUB'S SUN-BIRD.)

Nectarinia hartlaubii, Verr. in Hartl. Orn. W.-Afr. p. 50, no. 143 (1857); Hartl. J. f. O. 1861, p. 109; Dohrn, P. Z. S. 1866, p. 326; Gray, Hand-l. B. i, p. 108, no. 1324 (1869); Sharpe, Cat. Afr. B. p. 37, no. 346 (1871).

♂ *ad.* suprâ olivaceus, plumis sub certâ luce metallicè viridi vix nitentibus: tectricibus alarum remigibusque nigricanti-brunneis vix chalybeo adumbratis et olivaceo marginatis: tectricibus supracaudalibus rectricibusque nigris, illis sordidè viridi, his obscurè chalybeo marginatis, exterioribus pallidè brunneo intus albicante terminatis: facie laterali et colli lateribus dorso concoloribus, plumis loralibus chalybeo terminatis: genis et gutture toto violascenti-chalybeis: corpore reliquo subtus olivascente, pectore summo sordidiore: pectoris lateribus albis, hypochondriis lætiùs flavis: subalaribus albis: remigibus infrâ saturatè brunneis, intus albo marginatis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* mari similis, sed gutture olivaceo distinguenda.

HAB. in insulâ "principis" dictâ Africæ occidentalis.

Adult Male. Upper parts, as well as the sides of the head and neck, olive; a few of the feathers on the sides of the forehead tipped with deep metallic blue; upper tail-coverts and tail black, the edges of the feathers glossed with deep metallic bluish green, and with pale ends to the tail-feathers, broadest towards the outer ones; wings dark brown with olive edges to the feathers; chin and throat deep metallic violet-shaded blue; under surface of the body and the under tail-coverts yellowish olive, fading almost into white on the sides of the chest; under surface of the wings brown with the inner margins of the quills and the coverts white; bill and legs black; irides dark brown. Total length 5·6 inches, culmen 0·8, wing 2·5, tail 2·3, tarsus 0·85.

Adult Female. Similar in plumage to the male, excepting that the throat is olive, palest towards the chin. Total length 4·7 inches, culmen 0·7, wing 2·3, tail 2·0, tarsus 0·8.

HAB. Prince's Island, on the west coast of Africa.

HARTLAUB'S Sun-bird belongs to the "olive" group, and may be distinguished from its allies by the metallic portion of its plumage being confined to the throat, and by the sides of the chest being almost white. Its nearest allies are the Seychelles bird, *C. dussumieri*, which is of a more dusky shade and has orange-red pectoral tufts, and the West-African *C. cyanolaema*, which is browner and possesses a metallic-coloured crown.

The species is, we believe, confined to Prince's Island, where my artist, Mr. Keulemans, had many opportunities of observing it; and he kindly informs me that "it is tolerably abundant throughout the island, with the exception of the dense woods, where it is replaced by *C. obscurus*. It is most common on the plains where bushes and bananas occur; but as Prince's Island is thickly covered with verdure, it would be difficult to say where this Sun-bird is most abundant.

It is very plentiful near plantations, usually in small groups of from four to six individuals, in which the males are by far the most numerous.

“They have no special breeding-season; for I have found young birds in every month of the year; but I find in my journal, under the date of August 30th, that during that month I procured nineteen males but not a single female; so I suppose that at that season all the hens were breeding.

“I collected three nests, all of which were very similar. They are of an oval form, and are suspended from one or more twigs, at an elevation of from four to twelve feet from the ground, and generally well concealed amongst the foliage. They were constructed of the hairy appendages that are found on the bark of palm-trees, rather loosely woven together and lined with the soft filaments of flowers, cotton, and other fine vegetable materials, with the opening on the side most exposed to the light. I never found any of the eggs, but was brought one by a native boy supposed to belong to this species: it was a nearly perfect oval, pure white, and with a very thin shell.

“It appears to me that there is only one in each brood; for I never saw the parents feed more than a single young bird. It takes a long time before the young bird becomes independent; for I have seen the old birds feeding their offspring after it has been perfectly able to fly, and when it was already beginning to assume its adult male plumage.

“The song of the male resembles that of our Hedge-Sparrow, added to which are some notes similar to those of the Wren: it is, in fact, somewhat between the two songs, a little fuller and in a lower key, while the call-note is like that of the Redstart. By imitating this note they can be brought very close, and can be easily captured, as they are naturally very tame.

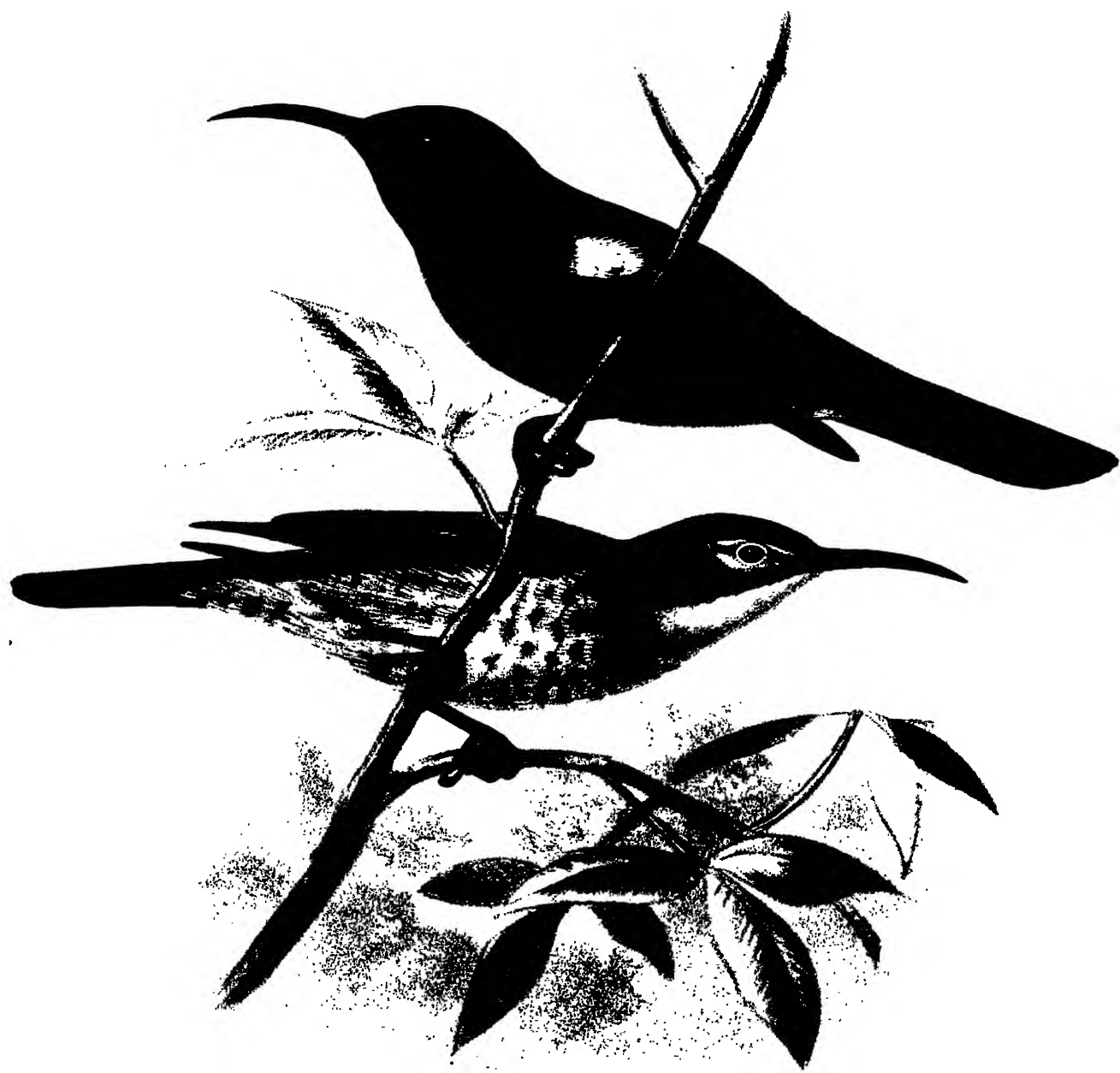
“They feed chiefly upon insects, but will also eat small berries and fruit, and are very partial to sipping the juice emitted by the banana-flower before the fruit has set.

“I kept many alive, and fed them upon *Papaya*, *Banana*, and bread soaked in sugar and water, with occasionally ants' eggs. Two males which I tried to bring to Europe died from cold after having lived in confinement more than three months.

“The natives call them ‘Siwie-barbeiro’ or ‘Siwie boca-longe,’ and the Portuguese ‘Besha-flore’ (flower-kissers).”

There is very little additional information that we can add to the accurate observations made by Mr. Keulemans. Dr. Dohrn writes that the young males are “very much like old females; by and by the yellow feathers of the throat and breast are changed into grey, and soon after begin to show blue metallic spots. Having observed these different stages of growth at the same time, I think that the hatching and breeding of these birds must be very irregular. According to the assertion of the natives they keep their nests during the whole year.” He further adds:—“I doubt if this species has been found in Angola, mistakes in localities in these parts being very common; for cruiser and merchant vessels usually touch at several places of the coast and the adjacent islands, and, if special care be not taken, collections from different places are easily mixed up together.”

The adult male here figured and described was collected by Mr. Keulemans, and is now in the Marquis of Tweeddale's collection; and the female was kindly lent to me by Dr. Finsch, and is now in the Bremen Museum.



CINNYRIS CYANOLÆMUS.

(BLUE-THROATED OLIVE SUN-BIRD.)

Nectarinia cyanolæma, Jard. Contr. Orn. 1851, p. 154; Hartl. J. f. O. 1854, p. 11. no. 111; Müll. J. f. O. 1855, p. 15. no. 168; Hartl. Orn. W. Afr. p. 51. no. 147 (1857); Cass. Pr. Philad. Acad, 1859, p. 36. no. 42; Hartl. P. Z. S. 1860, p. 110; id. J. f. O. 1860, p. 136; id. J. f. O. 1861, p. 109; Gray, Hand-l. B. i. p. 108. no. 1318 (1869); Sharpe, Ibis, 1870, p. 477; id. Cat. Afr. B. p. 37. no. 345 (1871); id. P. Z. S. 1871, p. 133; Ussher, Ibis, 1874, p. 58.

Anthodiæta cyanolæma, Reichb. Hand-b. Scansoriæ, p. 294. no. 688 (1854).

Cinnyris cyanolæmus, Sharpe & Bouvier, Bull. S. Z. France, i. p. 41 (1876).

♂ *ad.* brunneus: pileo summo et guttûre toto metallicè viridibus violaceo nitentibus: fasciis pectoralibus lætè sulfureis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* suprâ brunnea, plumis olivascenti-flavo late marginatis, capite unicolori: dorso imo, uropygio et supra-caudalibus eodem colore lavatis: rectricibus albo terminatis: capite laterali brunneo, strigâ supra- et infraoculari albidâ: subtùs albescens, gutture mediano vix brunneo adumbrato, pectore superiore obscurè griseo marmorato: hypochondriis, cum abdomine tibiisque et subcaudalibus, olivascenti-flavo lavatis.

♂ *juv.* similis feminae adultæ, sed pilei summi plumis quibusdam metallicis, pectore superiore olivascenti-iridi vix marmorato.

HAB. in Africâ occidentali.

Adult Male. Upper parts brown, including the sides of the head and neck, the wings and tail, the latter with slightly paler ends to the feathers; forehead, crown, chin, and throat deep metallic green shaded with violet; breast, under tail-coverts, and under surface of the wings slightly paler brown than the back; pectoral tufts pale sulphur-yellow; bill and legs black; irides dark brown. Total length 5·7 inches, culmen 0·9, wing 2·7, tail 2·5, tarsus 0·7.

Adult Female. Upper parts brown, including the wings and tail, the feathers broadly edged with olive-yellow, which colour predominates on the lower back and upper tail-coverts; the tail with pale ends, broadest on the outer feathers; forehead and crown scarcely tinted with olive; sides of the head brown, with a white band above and below the eye; underparts white, the throat shaded with pale brown, the chest faintly mottled with less-rufous brown; abdomen, flanks, thighs, and under tail-coverts washed with pale olive-yellow; under surface of the wings brown, with the coverts and the inner margins of the quills white; bill and legs black; irides dark brown. Total length 5·5 inches, culmen 0·8, wing 2·55, tail 2·2, tarsus 0·7.

Young Male. Similar in plumage to the female; but with a few metallic feathers on the crown, the chest slightly mottled with olive-green, and the under wing-coverts shaded with yellow.

HAB. West Africa.

THE present West-African species, which ranges from the Gold Coast to Angola, is nowhere

abundant. It belongs to the "Olive" group, and appears to be most nearly related to *C. hartlaubi*, from which it differs in having pale yellow pectoral tufts, and in the crown as well as the throat being deep metallic green. From *C. reichenbachii* it differs in the metallic parts being separated by the non-metallic feathers of the cheeks and ear-coverts.

The specimens which I have figured come from Fantee, where, according to Governor Ussher (Ibis, 1874, p. 58), it is not very common, though occasionally found in the vicinity of Cape-Coast Castle; but most of the specimens he sent home were, I believe, collected by Aubinn in Denkera; and I suspect that it is a woodland species, although it does not appear to be abundant even in these localities. During my stay on the Gold Coast, neither Mr. Buckley nor myself ever met with it; and I am inclined to believe that it visits Fantee, as a partial migrant, according to the flowering-season of the trees and plants.

The type specimens from which the late Sir William Jardine originally described this species were collected by Mr. Fraser on the island of Fernando Po. Mr. Cassin (Pr. Philad. Acad. 1859, p. 36) thus describes the immature male:—"Upper parts dark olive tinged with yellow; underparts pale yellowish green with obscure spots of dark green, nearly black on the throat; bill always black. *Hab.* Camma and Moonda rivers (*DuChailly*)." From these two localities I have examined specimens in the Marquess of Tweeddale's collection, as well as others from the Gaboon and the Ogowe river in the British Museum, formerly in Mr. Sharpe's collection, which also contained an example obtained by Mr. Monteiro in Angola, possibly from Bembe, whence it has been recorded by Dr. Hartlaub (P. Z. S. 1860, p. 110); and we are also informed by Mr. Sharpe (P. Z. S. 1871, p. 133) that a pair was brought home from Angola by Mr. Hamilton. Dr. Hartlaub (Orn. W.Afr. p. 51) gives the locality Galam, taken from a specimen in the Paris Museum.



GINNYRIS REICHENBACHI

CINNYRIS REICHENBACHII.

(REICHENBACH'S SUN-BIRD.)

Nectarinia reichenbachii, Hartl. Orn. W.Afr. p. 50. no. 142 (1857); Cass. Pr. Philad. Acad. 1859, p. 36. no. 43; Hartl. J. f. O. 1860, p. 137; id. J. f. O. 1861, p. 109; Gray, Hand-l. B. i. p. 108. no. 1323 (1869); Sharpe, Ibis, 1870, p. 478; id. Cat. Afr. B. p. 37. no. 347 (1871); Ussher, Ibis, 1874, p. 58.

♂ *suprà* olivascenti-flavus, uropygio et supracaudalibus puriùs flavis: pileo undique gulâque metallicè indigoticis: alis saturatè brunneis, plumis omnibus olivascenti-flavo marginatis: rectricibus nigris, olivascenti-flavo marginatis, externis quibusdam ad apicem pallidioribus: subtùs cinerascens, abdomine, tibiis et subcaudalibus flavis, vix olivaceo lavatis: fasciis pectoralibus latè flavis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* *suprà* olivascenti-brunnea: regione anteculari nigrâ: alis saturatè brunneis, plumis extùs olivaceo marginatis: remigibus nigris, extimis versùs apicem pallidioribus: subtùs pallidè olivascenti-flava.

♂ *juv.* similis mari adulto sed nusquam metallicus: capite undique olivascenti-brunneo: mento gulâque nigricantibus: pectore flavicante lateraliter olivaceo lavato.

Hab. in Africâ occidentali.

Adult Male. Upper parts olive-yellow, the lower back and upper tail-coverts almost pure yellow; entire head violet shaded with indigo-bronze; wings dark brown, each feather with rather sharply defined olive-yellow margins; tail black, the feathers edged with olive-yellow and with pale ends to some of the outer ones, the yellow broadest on the outer feathers; chin and throat indigo-bronze like the head; breast pale ash-colour with bright gamboge-yellow pectoral tufts; abdomen, thighs, and under tail-coverts yellow, slightly tinted with olive on the sides; under surface of the wings brown, with the coverts and the inner margins of the quills white; bill and legs black; irides dark brown. Total length 4.7 inches, culmen 0.6, wing 2.35, tail 2.15, tarsus 0.7.

Adult Female. Entire upper parts uniform olive-brown; in front of the eye black; a narrow buff eyebrow; ear-coverts olive-brown; wings dark brown, all the feathers edged with olive-brown of a slightly yellower shade than the back; tail black, the feathers slightly margined with olive, and the outer ones with pale tips; entire underparts pale olive-yellow; cheeks of the same colour; under surface of the wings brown, with the coverts and the inner margins of the quills white, the former shaded with yellow; bill and legs black, with the base of the lower mandible flesh-colour; irides dark brown. Total length 4.5 inches, culmen 0.7, wing 2.2, tail 1.7, tarsus 0.7.

Young Male. Similar in plumage to the adult male, excepting that it has no metallic colours on the head and throat, which parts are deep olive-brown, inclining almost to black towards the chin; remainder of the underparts bright yellow, washed with olive on the sides of the breast; bill and legs black, the former inclining to brown towards the base of the lower mandible; irides dark brown. Total length 4 inches, culmen 0.6, wing 2.2, tail 1.5, tarsus 0.7.

HAB. West Africa, from the river Volta to the Congo district.

THE present species is most nearly allied to *C. cyanocephalus*, from which it may at once be distinguished by the darker and bluer shade of the metallic head and throat, by the paler colour of the breast, by the yellow abdomen and under tail-coverts, and by the deep-yellow pectoral tufts.

The bill being shorter in this species than in the other members of the "Olive" group, to which it belongs, it is easy to determine the females and immature males of this species.

In three adult males I find the following variations in the measurements—culmen 0·6 to 0·7 inch, wing 2·3 to 2·55, tail 2·15 to 2·3, tarsus 0·68 to 0·7.

On the Volta it has been collected by Governor Ussher, who writes (Ibis, 1874, p. 58):—"I never observed this curious little Sun-bird elsewhere than on the river Volta, where I shot two specimens. They frequented low shrubs near the river-bank, and, I should fancy, were tolerably plentiful. The habits of most of these Sun-birds appear to be identical; and their flight and method of feeding offered nothing noteworthy to the collector."

Mr. Cassin records several specimens from the Camma river in Mr. DuChaillu's collection: he observes that they were rather larger than the specimen described by Dr. Hartlaub. "The young male," he states, "is like the female, but with the throat, abdomen, and under tail-coverts yellow, the former with a few lustrous metallic green feathers."

I feel confident that the specimens above described by me as an adult female and a young male are correctly identified. That the latter specimen is young there can be no doubt, owing to the texture of the feathers of the abdomen and under tail-coverts; but it evidently differs a little from the young bird described by Mr. Cassin. The following solution will perhaps be found to be the correct one, viz. that the bird described by Mr. Cassin as a "young male" is in a more advanced stage, or is an *adult* male in postnuptial plumage; for although it would appear at first sight to be highly improbable that the young male as it advances in age would become paler and of a yellow colour on the throat, when in the adult it is of a deep metallic colour, such, however, appears to be the case; for in a male in almost full plumage from the Volta some of the throat- and chin-feathers are bright yellow, although the base of the metallic feathers are black. We find a very similar case in *C. cyanocephalus*. Thus the young male I have described may be considered in the first stage of plumage, and that described by Mr. Cassin as the second stage, or the adult male in postnuptial dress.

C. reichenbachii is a very rare species; and we really know next to nothing regarding its habits.

My description of the adult male is taken from a Gaboon specimen in the British Museum, formerly belonging to Mr. Sharpe, to whom it was presented by M. Jules Verreaux, and the adult female and young male from specimens collected by M. Petit at Landana, in the Congo district.



CINNYRIS VERTICALIS.

(GREEN-HEADED OLIVE SUN-BIRD.)

- Ash-bellied Creeper*, Lath. Gen. Syn. Suppl. p. 130, no. 51 (1787); id. Gen. Hist. B. iv, pp. 261, 262, no. 66, 66 var. *a* (1822).
- Certhia verticalis*, Lath. Ind. Orn. i, p. 198, no. 57 (1790); Shaw, Gen. Zool. viii, p. 214 (1811); Bechst. Kurze Uebers. p. 193, no. 58 (1812).
- Soui-manga à tête bleue*, Aud. et Vieill. Ois. Dor. ii, p. 23, pl. 7 (1802).
- Soui-manga vert et gris*, Aud. et Vieill. tom. cit. p. 47, pl. 25; Vieill. N. Dict. d'Hist. Nat. xxxi, p. 515 (1819); Drapiez, Dict. Class. xv, p. 515 (1829); Swains. B. W. Afr. ii, p. 137 (1837).
- Certhia cyanocephala*, Shaw, Gen. Zool. viii, p. 203 (1811); Bechst. Kurze Uebers. p. 192, no. 78 (1812).
- Certhia dubia*, Bechst. tom. cit. p. 193, no. 81.
- Cinnyris cyanocephalus*, Cuv. Règne Anim. i, p. 412 (1817); Vieill. N. Dict. d'Hist. Nat. xxxi, p. 513 (1819); Bonn. et Vieill. Enc. Méth. ii, p. 587 (1823); Less. Man. d'Orn. ii, p. 48 (1828); id. Traité d'Orn. i, p. 295, no. 16 (1831); Bp. Consp. Av. i, p. 406, no. 4 (1850); id. Comptes Rendus, 1854, p. 265; Sharpe & Bouvier, Bull. Soc. Zool. France, 1876, p. 41.
- Cinnyris dubius*, Cuv. Règne Anim. i, p. 412 (1817).
- Blue-headed Creeper*, Lath. Gen. Hist. B. iv, p. 256, no. 54 (1822).
- Cinnyris chloronotus*, Swains. B. W. Afr. ii, p. 136, pl. 16 (1837); Allen & Thoms. Exp. Niger, ii, p. 221 (1848).
- Nectarinia cyanocephala*, Jard. Monogr. Sun-birds, pp. 198, 254, pl. 10 (1842); id. Ann. & Mag. Nat. Hist. x, p. 187 (1842); Licht. Nomencl. Av. p. 55 (1854); Hartl. J. f. O. 1854, p. 11, no. 111; Müll. J. f. O. 1855, p. 13, no. 142; Hartl. Orn. W.-Afr. pp. 49, 271 (1857); Cass. Pr. Philad. Acad. 1859, p. 36, no. 41; Hartl. J. f. O. 1860, p. 136, no. 80; id. P. Z. S. 1860, p. 110; id. J. f. O. 1861, p. 109; Gray, Hand-l. B. i, p. 108, no. 1325 (1869); Sharpe, Ibis, 1869, p. 188; id. Cat. Afr. B. p. 37, no. 349 (1871); Shelley & Buckley, Ibis, 1872, p. 287; Sharpe, P. Z. S. 1874, p. 306; Ussher, Ibis, 1874, p. 58; Bouvier, Cat. Ois. Marche, &c., p. 14 (1875); Reichenow, J. f. O. 1875, p. 30, 1877, p. 25.
- Nectarinia verticalis*, Gray, Gen. B. i, p. 98 (1847); Bp. Consp. Av. i, p. 405 (1850); Hartl. Orn. W.-Afr. p. 50 (1857); Cass. Pr. Philad. Acad. 1859, p. 36, no. 46; Hartl. J. f. O. 1860, p. 137, no. 84, 1861, p. 109; Gray, Hand-l. B. i, p. 108, no. 1327 (1869); Sharpe, Ibis, 1870, p. 478; id. Cat. Afr. B. p. 37, no. 348 (1871); Shelley & Buckley, Ibis, 1872, p. 287; Ussher, Ibis, 1874, p. 58; Bouvier, Cat. Ois. Marche, &c. p. 14 (1875).
- Cyanomitra cyanocephala*, Reichb. Handb. Scansoriae, p. 291, no. 678, pl. 573, fig. 3906 (1854).
- Leucochloridia verticalis*, Reichb. tom. cit. p. 312, no. 731, pl. 590, fig. 4002.

♂ *ad.* suprâ sordidè olivascenti-flavus, tectricibus alarum minimis et medianis dorso concoloribus : tectricibus reliquis remigibusque saturatè brunneis, extûs dorsi colore marginatis : rectricibus saturatè brunneis olivascenti-flavo limbatis : capite undique et gutture metallicè viridibus, facie laterali et gutture chalybeo nitentibus : corpore reliquo subtûs schistascienti-cinereo : fasciis pectoralibus pallidè flavis : subalaribus pectori concoloribus : remigibus infrâ saturatè brunneis, intûs pallidiûs marginatis : rostro et pedibus nigris : iride saturatè brunneâ.

♀ *ad.* suprâ mari similis : pileo et facie laterali metallicè viridibus : genis et corpore subtûs toto pallidè cineraceis : fasciis pectoralibus albis.

HAB. in Africâ occidentali.

Adult Male. Upper parts olive-yellow, including the least and median series of wing-coverts; remainder of the wings and tail dark brown, all the feathers broadly margined with olive-yellow; entire head, neck, and throat deep metallic green, with the chin and throat strongly shaded with steel-blue; in front of the eye a triangular patch of black feathers; under surface of the body and the under tail-coverts leaden grey; pectoral tufts very pale yellow; under surface of the wings dark brown, with pale inner margins to the quills and with the coverts leaden grey; bill and legs black; irides dark brown. Total length 5.2 inches, culmen 0.95, wing 2.6, tail 2, tarsus 0.65.

Adult Female. Similar in plumage to the adult male in the upper parts and sides of the head; entire under-surface very pale ashy grey, almost white towards the chin; pectoral tufts white, under surface of the wings dark brown with the inner margins of the quills paler and the coverts white; bill and legs black; irides dark brown. Total length 4.9 inches, culmen 0.9, wing 2.3, tail 1.8, tarsus 0.65.

Immature Male. Back, wings, and tail as in the adult; ear-coverts, crown, and back of the neck olive-yellow like the back, shading into dusky ashy on the forehead and front of the crown; a few metallic green feathers on the cheeks and back of the head; chin and throat dusky black, slightly mottled on the sides and towards the base with pale ashy; under surface of the body and the under tail-coverts ashy strongly washed with pale yellow; the feathers at the base of the throat brighter yellow forming a partially defined collar; under surface of the wings as in the adult female; bill and legs black; gape orange-yellow; irides dark brown.

HAB. West Africa.

THE present species may be recognized by its olive-yellow back and ashy breast, and by the entire upper half of the head and sides and back of the neck being metallic green in both sexes: in the male the breast is much darker, the chin and throat metallic bluish green, and the pectoral tufts very pale yellow, while in the female the chin and throat are very pale ashy, like the breast, and the pectoral tufts white; these pectoral tufts are rarely visible in the female, even in specimens otherwise apparently in perfectly full plumage.

The sexes have been separated by many authors as distinct species under the titles of *cyanocephalus* for the male and *verticalis* for the female. This error arose from the fact that the present form is the only known true *Cinnyris* in which the female is adorned with metallic colours; but in the closely allied genus *Anthreptes* such a departure from the general rule is not unfrequent. That these two forms are really only sexual differences is now beyond doubt. In the first place they both range throughout West Africa from Senegal to Angola, and in no

collection are we aware of the female having been obtained without the male occurring from the same locality, the females being by far the rarest of the two. Reichenow, who records it from the Camaroons and the Loango coast, points out their identity founded on the fact of all the grey-throated specimens being females and the metallic-throated ones males; and in a similar manner I had arrived at this conclusion from the examination of M. Petit's large and carefully sexed series of this species collected by him in the Congo district.

The late Sir W. Jardine is not very accurate in his description of a male from the Niger in which the process of moulting has commenced; and Mr. Cassin evidently refers to *C. obscurus* as the female of this species, and incorrectly describes the young male as similar to that bird, "but with the upper parts more strongly tinted with yellow, and with the top of the head dark brown. In this species the young birds have the under mandible white at base, and frequently for half or two thirds of its length."

In all the young, as in the birds in moult of the present species which we have examined, the lower mandible is entirely black; and the specimen described as the young male by Mr. Cassin we should refer to *C. obscurus*.

The immature birds of both sexes and the birds in full moult appear to be identical in plumage. The full dress first begins to appear in the shape of metallic feathers on the upper part of the head and neck; then the breast becomes mottled with clear ashy, and in the males the throat becomes mottled with metallic and in the females with ashy-white feathers. The last portion of the immature plumage to be discarded appears to be the yellow on the collar and down the centre of the breast.

According to Dr. Hartlaub there is a constant equatorial race from the Gaboon which differs from the more northern specimens in its larger size and in the bluer shade of the metallic throat. These characters we have entirely failed to detect; but in the Gaboon and Congo specimens, when compared with those from Senegal and the Gold Coast, we find the upper parts slightly more olive and faintly glossed with metallic green, usually most strongly marked on the lesser wing-coverts.

From the northern portion of West Africa we have examined specimens from Senegal, river Gambia, Casamance, and Sierra Leone. Lieutenant Bulger has collected it on Bulama, one of the Bissagos Islands, in about 11° N. lat.

From the Gold Coast we have seen specimens from Elmina, where it has been collected by Messrs. Blissett and Weiss, and from Fantee and the river Volta by Governor Ussher, who writes:—" *Nectarinia verticalis*. This Sun-bird is not very common. I have shot it in company with *N. cyanocephala*. Occasionally skins have been brought from the interior; and there is no reason to doubt that its habitat extends over the whole of Fantee.

" *Nectarinia cyanocephala*. Extremely common, especially in the vicinity of Cape coast. I have already referred to this bird under the head of *N. splendida*, which it resembles much in its habits."

During our stay on the Gold Coast Mr. Buckley and I found the present species to be common at Abrobonko, around the large scarlet flowers of a species of *Bombax*, in company with many other Sun-birds, and frequently saw it perched upon the fronds of the cocoanut-palms in the vicinity of Cape-coast Castle. It is a woodland species, which would account for

our not meeting with it at Accra; but it appears curious to us that we did not see it during our short excursion to the forests of Aguapim.

In the Niger district it has been collected by Dr. Strange, and in the Gaboon by Du Chaillu on the Muni, Munda, Ogowé, and Camma rivers, and at Cape Lopez. We have examined a large series of M. Petit's specimens from Landana; and in Angola it has been obtained by Perrein at Malimba, and by Monteiro at Bembe.

The adult male here figured and described was collected by myself at Cape-coast Castle. The female and immature male came from the Gambia, and were in Mr. Sharpe's collection, which has now been added to the British Museum.



ANTHREPTES HYPOGRAMMICA

ANTHREPTES HYPOGRAMMICA.

(BANDED SUN-BIRD.)

Anthreptes macularia, Blyth, Journ. A. S. B. xi. p. 107 (1842, sine descr.).

Nectarinia hypogrammica, S. Müll. Naturh. Gesch. Land- u. Volkenk. p. 173 (1843); Müll. & Schl. op. cit. Zool. Aves, p. 63. no. 14, pl. 8. fig. 3 (1846); Gray, Gen. B. i. p. 98 (1847); Low, Sarawak, p. 410 (1848); Blyth, Cat. B. Mus. A. S. B. p. 225. no. 1364 (1849).

Anthreptes nuchalis, Blyth, J. A. S. B. xii. p. 980 (1843, December).

Nectarinia nuchalis, Gray, Gen. B. i. p. 99 (1847).

Anthreptes hypogrammica, Bp. Consp. Av. i. p. 409. no. 2 (1850); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 738. no. 1078 (1856-58); Moore, P. Z. S. 1859, p. 461. no. 186.

Hypogramma nuchalis, Reichb. Handb. Scansoriæ, p. 314. no. 740, pl. 588. fig. 3992 (1854); Salvad. Ann. Mus. Civ. Genova, v. p. 172 (1874).

Arachnothera hypogrammica, Gray, Hand-l. B. i. p. 113. no. 1397 (1869).

Arachnechthra hypogrammica, Walden, Ibis, 1870, p. 30.

Arachnechthra macularia, Walden, Ibis, 1872, p. 381.

♂ *ad.* suprâ olivascens, tectricibus alarum dorso concoloribus: torque collari postico, uropygio et supracaudalibus chalybeis: remigibus brunneis olivascenti-flavo limbatis: rectricibus saturatè brunneis, flavido limbatis, extimis albo terminatis: subtùs pallidè flavus, plumis latè saturatè brunneo striatis, abdomine, hypochondriis et subcaudalibus concoloribus olivascenti-flavis: rostro nigro: pedibus viridescenti-brunneis: iride brunncâ.

♀ *ad.* mari similis sed torque collari nullo, uropygio et supracaudalibus dorso concoloribus.

Hab. in peninsulâ malaccensi et in insulis "Sumatra," "Borneo" dictis.

Adult Male. Upper parts yellowish olive, including the wing-coverts; a collar on the back of the neck, the lower back and upper tail-coverts steel-blue; quills dark brown broadly margined with olive-yellow; tail dark brown, the feathers narrowly edged with olive-yellow, and some of the outer ones with white tips; underparts pale yellow inclining to white on the chin, and each feather with a broad olive-brown band down the centre, causing the throat and breast to be boldly streaked; abdomen, flanks, and under tail-coverts uniform olive-yellow; under surface of the wings dark brown, with the inner margins of the quills and the coverts white, the latter shaded with yellow towards the edge of the wing; bill black; legs greenish brown; irides brown. Total length 5·6 inches, culmen 0·75, wing 2·6, tail 2·1, tarsus 0·65.

Adult Female. Similar in plumage to the male, excepting that the entire upper parts are yellowish olive with no metallic plumes. Total length 5 inches, culmen 0·75, wing 2·4, tail 1·85, tarsus 0·65.

HAB. Malay peninsula, Sumatra, and Borneo

THE peculiarity in the colouring of this bird is such that it cannot be confounded with any other known Sun-bird, the breast being broadly striped with dark brown on a pale yellow ground, while the metallic colours are confined, in the male, to a band across the back of the neck, and the lower back and upper tail-coverts, these parts only being steel-blue.

Although I retain it in the genus *Anthreptes* on account of the straight keel of the lower mandible, it is rather an aberrant form, and may be regarded as a link between the above-named genus and the "olive" group of *Cinnyris*. It was, indeed, made into a separate genus (*Hypogramma*) by Reichenbach.

It inhabits the Malayan region, and is, according to Müller, found in Sumatra and Borneo, in the plains as well as in the mountain-forests. From Lieut. Wardlaw Ramsay's valuable notes attached to his specimen from Malacca, and from a Marup skin of Mr. Everett's, I have taken the colours of the soft parts in my present description, as well as the entire length of the adult male in the flesh, which is nearly half an inch longer than the measurement of the dried skin. At Penang it has been collected by Cantor, and at Singapore by Doria. In Borneo it appears to be plentiful in the north-western district, whence I have seen several specimens collected by Mr. Low; and it is recorded from Sarawak by Doria and Beccari, and from Marup by Everett. Thus it will be seen that the range assigned to this species by Lord Walden (Ibis, 1870, p. 31) has been fully confirmed; but I would observe that there still remains a great lack of information concerning the habits of this interesting and very peculiarly coloured Sun-bird.

Messrs. Hume and Davison's notes have fortunately just arrived in time for me to add them here:—"This species," they inform me, "is found in Tenasserim, so far as we yet know, only to the southward of Mergui; thence it occurs, though everywhere a rare bird, southward to Jahore and Singapore.

"In all its habits, mode of flight, and voice, it is closely allied to *Anthreptes malaccensis*, being more of an insect-cater than a honey feeder. But while *Anthreptes malaccensis* swarms in all the gardens, the present species occurs (mostly in pairs, though sometimes singly) for the most part in the forest or on its outskirts. Occasionally, of course, it does occur in gardens, where it may be seen hunting trees and shrubs that are in flower, feeding on the nectar at times, but often hunting the foliage also for insects. The note, like that of *Anthreptes malaccensis*, is a feeble chirrup.

"*Male*. Length 5·62 to 5·8 inches, expanse 8·0 to 8·25, tail from vent 2·0 to 2·12, wing 2·55 to 2·65, tarsus 0·6 to 0·7, bill from gape 0·85 to 1·0, weight 0·4 to 0·5 ounce.

"*Female*. Length 5·4 to 5·6 inches, expanse 7·62 to 7·75, tail 1·85 to 2·1, wing 2·4 to 2·55, tarsus 0·6 to 0·62, bill from gape 0·85 to 0·91.

"The legs and feet are greenish brown or dark plumbeous green; the bill is horny black, and in the male the gape is dull yellow: this may be the case also in the female; but we have not noted it in the case of any of our specimens. The irides are dark brown."



ANTHREPTES FRASERI.

(FRASER'S SUN-BIRD.)

Anthreptes fraseri, Jard. & Selby, Ill. Orn. N. S. pl. 52 (1842); Bp. Consp. Av. i, p. 409, no. 3 (1850); Hartl. J. f. O. 1854, p. 14; Cass. Pr. Philad. Acad. 1859, p. 37; Du Chaillu, Equat. Afr. p. 472 (1861).

Nectarinia fraseri, Gray, Gen. B. i, p. 99, no. 98 (1847); Müll. J. f. O. 1855, p. 16; Hartl. Orn. W.-Afr. pp. 50, 271 (1857); id. J. f. O. 1861, p. 109.

Elaeocerthia fraseri, Reichb. Handb. Scansoriæ, p. 292, no. 682, pl. 578, fig. 3934 (1854).

Mangusia fraseri, Bp. Comptes Rendus, 1854, p. 265.

Arachnothera fraseri, Gray, Hand-l. B. i, p. 113, no. 1399 (1869).

♂ *ad.* suprâ lætè olivascanti-viridis, tectricibus alarum magis aurato-olivaceis: remigibus brunneis extûs aurato-olivaceis: caudâ alisque concoloribus: annulo ophthalmico flavo: facie laterali et corpore subtûs olivascanti-viridibus, abdomine lætiûs flavo: fasciis pectoralibus scarlatinis basaliter flavis: subalaribus pallidè flavidis: remigibus subtûs brunneis intûs fulvido marginatis: rostro brunneo, ad basin mandibulæ olivascanti-flavo: pedibus olivascanti-viridibus: iride saturatè brunneâ.

♂ *imm.* similis mari adulto, sed fasciis pectoralibus nullis.

HAB. in Africâ occidentali.

Adult Male. Upper parts olive-green; wing-coverts slightly more yellow; quills dark brown, with the outer webs olive-yellow; tail golden olive, with the quills of the feathers dark brown; eyelids sulphur-yellow; underparts pale yellowish olive; pectoral tufts orange-red; under surface of the wings dark brown, with the inner margins of the quills and the coverts buff, the latter shaded with yellow; bill brown, shading into olive-yellow towards the base of the lower mandible; irides dark brown; legs olive-green. Total length 5·3 inches, culmen 0·65, wing 2·8, tail 2·4, tarsus 0·65.

Immature Male. Similar in plumage to the adult male, excepting that the pectoral tufts are absent. Total length 4·3 inches, culmen 0·6, wing 2·3, tail 1·7.

HAB. Fernando Po, and the Gaboon country in Western Africa.

FRASER'S Sun-bird may be recognized by the general olive-green colour of its plumage, no portion of which has metallic reflections, by the straight and comparatively short bill, and by the pectoral tufts being orange-red.

Mr. Keulemans informs me that his specimens of *C. obscurus* from Prince's Island were incorrectly referred to the present species; and Dr. Dohrn has likewise fallen into a similar error, for he writes:—"The male bears a strong resemblance to the former species (*C. hartlaubi*), with the exception of the yellow axillary feathers, the greenish brown legs, and the rather grey breast." Now these characters apply well to *C. obscurus*, but not to the present species; for in the present bird the entire plumage is green, the pectoral tufts not yellow, but orange-red, and

the breast is not greyer than in *C. hartlaubi*, but greener; and he entirely omits to remark the characteristic form of the bill. Under these circumstances I shall omit Prince's Island as a locality for this species, as not resting upon sufficiently good authority.

The type specimen was collected on Fernando Po by Fraser, according to whose notes "two other specimens only were seen, but could not be obtained. They had a straight dart-like flight, appeared of a long slender form, and ran actively up the small branches in search of insects. Bill olive-yellow at the base of the lower mandible, legs olive-green, irides hazel."

On the continent it appears only to have been met with in the Gaboon district, where Du Chaillu collected specimens at Cape Lopez and on the banks of the Camma and Ogowè rivers.

According to Mr. Cassin "the female is smaller than the male, but very similar in colours. The young male like the female, but with the colours duller and of a darker green in all the plumage, no axillary tufts."

We enter these notes of Mr. Cassin, as the species is very rare in collections; and the few specimens we have been able to examine have no indication of the sex, excepting in the two specimens which we have here figured and described, both of which are males. They were procured by Du Chaillu on the Camma river, and now form part of the Marquis of Tweeddale's collection.



ANTHREPTES SIMPLEX

ANTHREPTES SIMPLEX.

(PLAIN-COLOURED SUN-BIRD.)

Nectarinia simplex, S. Müll. Natuurl. Gesch. Land- en Volkenk. p. 173 (1843); Müll. & Schl. op. cit. Zool. Aves, p. 62, pl. 8. fig. 4 (1846); Gray, Gen. B. i. p. 98 (1847); Low, Sarawak, p. 410 (1848); Blyth, Cat. B. Mus. A. S. B. p. 225. no. 1362 (1849).

Nectarinia frontalis, Blyth, J. A. S. B. xiv. p. 558 (1845).

Cinnyris simplex, Bp. Consp. Av. i. p. 408. no. 39 (1850).

Arachnoraphis simplex, Reichb. Handb. Scansoriæ, p. 313. no. 736, pl. 594. fig. 4028 (1854).

Arachnothera simplex, Gray, Hand-l. B. i. p. 111. no. 1370 (1869).

Arachnechthra simplex, Walden, Ibis, 1870, p. 31.

Arachnophila simplex, Salvad. Ann. Mus. Civ. Genov. v. p. 172 (1874).

Anthreptes simplex, Hume, Str. F. iii. p. 319. no. 232 quart. (1875).

Anthreptes xanthochlora, Hume, tom. cit. p. 320. no. 232 quint.

♂ *ad.* suprâ flavicanti-olivaceus: fronte saturatè metallicè viridi: capite laterali cinerascente, genis et regione paroticâ olivaceo lavatis: alis saturatè brunneis, tectricibus alarum minimis et medianis et remigum marginibus flavicanti-olivaceis: subtùs cinerascens, abdomine vix flavo adumbrato: mento gulâque albidis: fasciis pectoralibus sulfureis: rostro corneo-brunneo: pedibus sordidè virescentibus: iride rubrà.

♀ similis mari adulto, sed fronte metallicâ et fasciis pectoralibus absentibus.

HAB. in regione Malayanâ.

Adult Male. Upper parts yellowish olive; forehead and front half of the crown deep metallic green; feathers in front of the eyes dusky ash-colour; cheeks and ear-coverts olive tinted with ashy; wings dark brown, with the least and median series of coverts and broad edges to all the other feathers yellowish olive; underparts ashy shaded with yellow; chin and throat almost white; pectoral tufts sulphur-yellow; under surface of the quills ashy brown, with the inner margins nearly white; under wing-coverts white, washed with yellow. Total length 4·4 inches, culmen 0·55, wing 2·45, tail 2·0, tarsus 0·65.

Adult Female. Similar in plumage to the adult male, but without the metallic forehead or the pectoral tufts. Total length 4 inches, culmen 0·55, wing 2·15, tail 1·65, tarsus 0·6.

HAB. Malay peninsula, from Mergui, Southern Tenasserim, to Singapore; also Sumatra and Borneo.

MR. G. R. GRAY (Hand-l. B. no. 1370) enters this species as inhabiting Lombock; but no other naturalist has recorded it from that island, and the only specimen in the British Museum that I am aware of was procured last year from Borneo.

Mr. Hume, with his usual promptitude to ascertain the real specific value of a recently

described species, has most generously lent me the type specimen of his *Anthreptes xanthochlora*, as well as a male of *A. simplex* from Malewoon.

I find, on comparing these skins with my two Bornean specimens above described, the former of which was collected by Mr. Low in North-west Borneo, opposite Labuan, the other by Mr. Everett at Bintulu, that Mr. Hume's specimens are brighter and rather yellower, and have the feathers in front of the eye shaded with olive. In the male the metallic forehead does not extend quite so far upon the crown; and it has no pectoral tufts. These differences I attribute to its not being in quite such full plumage, but should hesitate to call it a very young bird, although I think it probable that the yellower shades are due to age. The typical female of *A. xanthochlora* agrees well in its general colouring with Mr. Hume's male specimen of *A. simplex* from Malewoon, and was only separated on account of its smaller size; and therefore, in order to compare them with the Bornean specimens above described, I shall give the following measurements:—

A. simplex (♂), 10th January, Malewoon. In the flesh—"length 5.25 inches, expanse 7.75, bill from gape 0.7, wing 2.4, tail 2.0, tarsus 0.6" (Davison). From the dried skin—length 4.80 inches, culmen 0.60, wing 2.4, tail 2.0, tarsus 0.6.

A. xanthochlora (♀), Pabyai, Mergui district, 14th November, 1874. In the flesh—"length 4.75 inches, expanse 7.0, bill from gape 0.6, wing 2.25, tail 1.75, tarsus 0.5, weight a little over 0.26 ounce" (Davison). From the dried skin—length 4.0 inches, culmen 0.48, wing 2.20, tail 1.75, tarsus 0.58.

I make the tarsus in this latter specimen 0.08 longer than Mr. Davison does, thus giving no appreciable difference in the length of the tarsus between the specimens before me, and in the bill only a difference of 0.07 between it and my Bornean specimens; so that I feel sure Mr. Hume will agree with me that the specific title of *A. xanthochlora* must be suppressed. Still, in justice to that gentleman, I must state that the two specimens he sent me appear far more different in size as they lie on the table before me than their measurements would indicate, but with the Bornean specimens between them the gradation in size is perfect.

Messrs. Hume and Davison only procured three specimens of this bird, two of which were males; and they write to me:—"We found these two males, one in the south of the Tenasserim Province at Tenasserim town, the other at Malewoon, on the Pakchan estuary. We have not observed it yet in the Malay peninsula. The male from Tenasserim town measures—length 4.75 inches, expanse 7.37, tail from vent 1.82, wing 2.38, tarsus 0.6, bill from gape 0.65.

"The legs and feet were pale dirty green, the bill dark horny brown, the irides wood-brown."

The third specimen was the type of *A. xanthochlora*, of which they write:—"We obtained a single specimen (a female) of this supposed species at Pabyai, a village a little to the north of Mergui, on the mainland (Mergui itself is on an island); and but for the great difference in size (which the figure and linear dimensions give no adequate idea of), especially in the bills, I should have considered it a female of *A. simplex*; but in no other of the most closely allied species is there such an enormous difference in the size of the sexes.

"The colour of the irides, too, is different; but that, as we have already seen in the case of *Anthreptes malaccensis*, is not at all a safe character."

In this specimen, as quoted from the label by Mr. Hume (Str. F. iii. p. 320, note), "the bill was darkish horny brown; the irides lake-red; the legs, feet, and claws pale reddish green."

From Malacca and Singapore it has been recorded by Mr. Blyth. Müller and Schlegel's type specimens came from Sumatra, where they were discovered at Singalauk, 2000 feet above the sea, in the woods of the mountain-chain between Padang and Goenong.

In Borneo it has been collected by Mr. Low at Sarawak and in the north-west of the island opposite Labuan, and by Mr. Evcrett at Bintulu. According to Beccari the iris is red; and Salvadori observes that Doria found it to be fairly abundant about Sarawak, where it frequents the highest trees. I cannot agree with the Count that it requires the separate genus *Arachnophila* for its reception. Its structure appears to me to be similar to that of *A. malaccensis*; and the colouring of its plumage will not appear abnormal when compared with such a bird as *Anthreptes fraseri* in the present genus, or *Cinnyris verticalis*, from West Africa, in the genus *Cinnyris*.

The figures in the illustration of this species represent the two Bornean specimens above described and the type specimen of Mr. Hume's *A. xanthochlora*, which may be recognized by its rather brighter and yellower shade of plumage.



ANTHREPTES RHODOLÆMA.
ANTHREPTES MALACCENSIS.

ANTHREPTES RHODOLÆMA.

(RUFIOUS-THROATED SUN-BIRD.)

♂ *ad. similis A. malaccensi*, sed pileo, collo postico interscapulioque viridioribus, capitis lateribus et tectricibus alarum medianis plerisque et majoribus cum scapularibus rufis, remigibus et rectricibus basaliter olivascenti-flavo latius limbatis, gutture toto lætè rufescente cano adumbrato, corpore subtus olivascenti-flavo, fasciis pectoralibus lætè flavis diversus.

♀ vix à fœminâ *A. celebensis* distinguenda.

Hab. in peninsulâ Malayensi et in insulâ "Sumatra" dictâ.

Adult Male. Upper parts metallic green glossed with lilac bronze; lower back, upper tail-coverts, and the least series of wing-coverts rich metallic violet; median series of wing-coverts, edges of most of the greater coverts, and a large portion of the scapulars bright rufous; remainder of the wings dark brown with olive-yellow edges to the feathers; tail dark brown, the feathers edged with metallic green and violet shading into olive-yellow towards the base of all but the centre feathers; sides of the head bright rufous, usually slightly tinted with olive; underparts olive-yellow, contrasting strongly with the bright yellow pectoral tufts; chin and throat roseate rufous with a white gloss; remainder of the plumage as in *A. malaccensis*. Total length 5 inches, culmen 0·65, wing 2·6, tail 1·9, tarsus 0·65.

Female, supposed to belong to this species. Very similar to the female of *A. celebensis*. Upper parts ashy brown, shaded with olive on the forehead, crown, scapulars, lower back, upper tail-coverts, and edges of the wings and tail-feathers; sides of the head ashy brown, with an eyebrow and the feathers in front of the eye buff; underparts pale buff shaded with yellow down the centre of the breast and on the abdomen; sides of the upper chest and the flanks slightly shaded with ash; bill horn-brown; iris lake-brown; legs greenish brown. Total length 4·75, culmen 0·65, wing 2·4, tail 1·8, tarsus 0·65.

HAB. Malacca and Sumatra.

THE Rufous-throated Sun-bird is here described as a distinct species for the first time. It may be easily recognized by the rufous colouring of the throat, sides of the head, and of a large portion of the wings, as well as by the olive shade of the breast, which contrasts strongly with the bright yellow pectoral tufts; in this latter character it approaches most nearly to *A. celebensis*. There are also some other less important distinctions, noticed in my description.

The female which I have referred to this species was collected by Lieut. Wardlaw Ramsay on the 12th of August 1873, and is very distinct from all the specimens I have examined of *A. malaccensis*, but is hardly to be recognized from the Celebes bird. A young male also collected by that gentleman on the same day, I should refer to this species; but it is not to be distinguished by its plumage from the female of *A. malaccensis*, as already described by me, excepting in the rather greener shade of the upper parts, a character of no great importance.

So far as we yet know, this species is confined to the neighbourhood of Malacca and the island of Sumatra, whence I have seen a good series of skins.

The adult male of this species is represented in the upper figure of the Plate, the lower one being taken from a Madura specimen, which differs slightly, but not specifically, from typical *A. malaccensis*.



ANTHREPTES MALACCENSIS

ANTHREPTES MALACCENSIS.

(MALACCAN BROWN-THROATED SUN-BIRD.)

- Le Grimpereau de Malacca*, Sonn. Voy. Ind. ii, p. 209, pl. 116, fig. 1 (1782).
Certhia malaccensis, Scop. Del. Flor. et Faun. Insubr. ii, p. 91, no. 62 (1786, ex Sonn.).
Yellow-bellied Creeper, Lath. Syn. Suppl. p. 131, no. 54 (1787); id. Gen. Hist. B. iv, p. 229, no. 18 (1822).
Certhia lepida, Lath. Ind. Orn. i, p. 298, no. 60 (1790); Shaw, Gen. Zool. viii, p. 213 (1811); Bechst. Kurze Uebers. p. 189, no. 61 (1812).
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Arachnothera malaccensis, Gray, Hand-l. B. i, p. 113, no. 1396 (1869).
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♂ *ad.* suprâ lilacino-bronzinus, capite colloque viridi adumbratis: dorso postico, uropygio, supracaudalibus, tectricibus alarum minimis-lætè metallicè violaceis: tectricibus medianis, majorum marginibus et scapularibus quibusdam rubescenti-brunneis: alâ reliquâ saturatè brunneâ, pennis olivascenti-flavo limbati rectricibus nigris, metallicè violaceo et viridi marginatis: capitis lateribus olivascenti-brunneis: subt lætè flavus: mento gulâque chocolatinis cano adumbratis, et utrinque strigâ metallicè violaceâ et viri marginatis: alâ subtùs brunneâ, remigibus intùs pallidè marginatis: subalaribus albis, flavo lavatis.

♀ *ad.* suprâ olivaceo-viridis: alis caudâque saturatè brunneis, pennis olivascenti-flavo marginatis: subtùs flava versus mentum pallidior, gutture et corporis lateribus vix olivaceo lavatis.

Hab. in regione Indo-Chinensi, in peninsulâ Malayana, et in insulis Malayanis.

Adult Male. Upper parts lilac-bronze, shaded with green on the head and neck; lower back, upper tail-coverts, and the lesser wing-coverts rich metallic violet; median series of wing-coverts, edges of the greater coverts, and a portion of the scapulars maroon-brown; remainder of the wings dark brown with olive edges to the feathers; tail black, the feathers edged with metallic violet and green; sides of the head olive-brown; underparts rich yellow, with the yellow pectoral tufts barely distinguishable; chin and throat chocolate-brown with a white gloss, and margined on each side by a loreal band of metallic violet mottled with green towards its junction with the metallic green on the sides of the neck; under surface of the wings brown with narrow pale margins to the inner webs of the quills; the coverts white shaded with yellow; bill dark brown; irides red; legs yellowish green. Total length 5 inches, culmen 0·65, wing 2·6, tail 1·8, tarsus 0·65.

Adult Female. Upper parts olive-green; wings and tail dark brown, the feathers edged with olive-yellow; underparts yellow, palest towards the chin, and slightly shaded with olive on the throat and sides of the body. Total length 4·5 inches, culmen 0·6, wing 2·5, tail 1·8, tarsus 0·65.

HAB. Arracan, Southern Burmah, Siam, Cambodia, the Malay peninsula, and the island of Penang; Sumatra, Java, Madura, Flores, Borneo, Labuan, and Palawan.

WITH a very large series before me, I have come to the conclusion that *A. malaccensis* should be kept separate from four other very closely allied species, two of which I shall describe as new.

The characters which distinguish the present species from the other closely allied forms are as follows:—The breast is bright yellow in both sexes and at all ages. In the adult male the sides of the head are olive-brown, the throat chocolate-brown glossed with white, a large portion of the greater series of wing-coverts and the scapulars maroon-brown. In the young males the throat is mottled with bright yellow and often with orange, excepting in three specimens which I have examined from Flores, in which the throat is mottled with white; but adult males from that island agree perfectly with specimens from Malacca and Borneo.

I have examined a female from Cambodia, and adult males from all the localities above enumerated.

Messrs. Hume and Davison write to me:—"Akiab, in Arracan, whence we have recently received specimens, is, so far as we yet know, the most northern limit attained by this species. We have not received it from Pegu; nor have we observed it in any part of Tenasserim north of Moulmein. In fact our first specimens were obtained at Amherst; thence southward, until Mergui is reached, the species must be accounted rare. Southward of Mergui, along the

western coast of the Malay peninsula to its extremity at Singapore, it is one of the most, if not actually *the* most common of all the Sun-birds, occurring in numbers in every garden and cocoa-nut plantation, amongst the mangroves that fringe the shores, and wherever flowers are to be seen. It seems to shun only the denser portions of the forests and the dense scrub jungle.

"Both this species and *A. hypogrammica*, which is a true *Anthreptes* in all its habits, differ somewhat from the more typical Sun-birds, in feeding more largely on insects and less upon honey, and in making greater use of their feet and less of their wings when moving about among the flowers and foliage.

"The male of this species occasionally utters a feeble song, if its few twittering notes are to be dignified by this appellation; but it is very distinctly more of a song than the chirruping of the *Aethopygæ*.

"This species has no non-breeding plumage; this we can pretty confidently assert, having obtained it at all seasons.

"*Male*. Length 5.12 to 5.4 inches, expanse 8.12 to 8.62, tail 1.75 to 2.0, wing 2.5 to 2.75, tarsus 0.62 to 0.65, bill from gape 0.75 to 0.8, weight 0.4 to 0.5 ounce.

"*Female*. Length 4.75 to 5.12 inches, expanse 7.7 to 8.12, tail 1.5 to 1.75, wing 2.37 to 2.5, tarsus 0.55 to 0.62, bill from gape 0.7 to 0.8.

"The colours of the soft parts are variable. The legs and feet are generally dark sap-green, with the feet slightly paler, and the soles light yellowish green; but the feet have sometimes a yellowish tinge, and are sometimes orange, barely tinted with green, and with the soles a clear orange; the claws are generally green. The bill is dark horny brown, in some nearly black; the gape is orange. The irides vary most of all, equally in both sexes, and in birds killed at the same season, from bright red to dark brown. Neither does this appear to be due to age, as we have some clearly adult, full-plumaged, males with light-red irides."

The description given by Sir R. Schomburgk of his *Anthreptes lepida* from Siam is not to be recognized as belonging to this or any other known species of Sun-bird; yet, according to Mr. Gould, he did obtain *A. malaccensis* in Siam, and I have seen an adult male from that locality in Mr. Swinhoe's collection; and from Cambodia I have examined a female in the Marquis of Tweeddale's cabinet.

It appears to be absent in Pegu; for Mr. Oates omits it in a list of the Sun-birds of that district which he has kindly sent me. Dr. Cantor collected it in Penang, where it has also been procured by Mr. Swinhoe.

Dr. Horsfield (Trans. Linn. Soc. xiii. p. 167) describes this species under the title of *Nectarinia javanica*, from Javan specimens; and Sir S. Raffles (*l. c.* p. 299) refers the Sumatra bird to the same species. The only specimen which I know of from the island of Madura was collected there by Dr. Meyer in November 1871, and is now in the possession of the Marquis of Tweeddale. It differs slightly from typical *A. malaccensis* in the almost entire absence of maroon-brown on the greater wing-coverts and scapulars, and in the blue shade being more intense in the metallic colouring of the wings and lower back; it is also slightly more robust (culmen 0.65 inch, wing 2.55, tail 1.9, tarsus 0.65), but is not, I consider, separable as a species from *A. malaccensis*.

This specimen is figured, with the wings extended, in the same illustration with *A. rhodolæma*;

and the Plate represents the two most extreme forms of the Malayan *Anthreptes* or Brown-throated Sun-birds.

In the island of Flores, which appears to be the extreme south-eastern range of this species, it has been collected by Mr. Wallace.

In Borneo it is very abundant, ranging apparently all over the island. According to Mr. Motley it is not rare about Banjermassing. It is recorded by Count Salvadori from Sarawak, in the collections of Doria and Beccari, and has been collected by Mr. Everett at Sibü. Mr. Low and Governor Ussher have sent home a large number from the north-west coast, opposite Labuan.

Messrs. Motley and Dillwyn write (Nat. Hist. Labuan, p. 16):—"We have seen this bird at the south end of Labuan; its movements, as we have also observed in other species of this genus, much resemble those of English Titmice."

The Bornean avifauna seems to extend to the island of Palawan, in the Philippines; so that we are not surprised to find that the specimens of *Anthreptes* collected by Dr. Steere in that island belong to the present species, and not to the *A. chlorigastrea*, which he met with in Negros.

The nest of this bird is oval in form, with a hole at one side near the top. It is rather loosely constructed of cocoanut-fibres, shreds of bark, and a few dead leaves, which bind together the white silk-like down of some plant-seeds, giving consistency to the structure, but not specially forming the lining. Length, exclusive of some of the loose pendent shreds, 4·5 inches, breadth 3. The nest here figured and described, and several others of this species in the British Museum, are all similar in structure, and in like manner suspended from twigs. They were collected by Mr. Low in North-western Borneo, whence also came the specimens here described and figured.



ANTHREPTES CHLORIGASTRA.
ANTHREPTES CELEBENSIS

ANTHREPTES CHLORIGASTRA.

(SHARPE'S BROWN-THROATED SUN-BIRD.)

Anthothreptes malaccensis (pt.), Salvad. Ann. Mus. Civic. Genova, xii, p. 661 (1875); id. op. cit. ix, p. 57 (1876); id. Att. R. Acc. Tor. xii, p. 320 (1877).

Anthreptes chlorigaster, Sharpe, Trans. Linn. Soc. 2nd series, Zool. i, p. 342 (1877).

♂ *ad.* similis *A. malaccensi* sed major: pectore magis olivascente, medialiter flavicante, corporis lateribus et subcaudalibus olivascanti-viridibus, fasciis pectoralibus lætè flavis conspicuis diversus.

♀ *ad.* suprâ olivascanti-viridis, tectricibus minimis dorso concoloribus: alâ reliquâ rectricibusque saturatè brunneis, pennis olivascanti-flavo marginatis: capite laterali olivascanti-viridi: maculâ anteculari et supercilio indistincto flavicanti-fulvis: mento gulâque superiore fulvis, gutture olivascanti-flavo: corpore reliquo subtus ut in mare colorato, sed fasciis pectoralibus absentibus: margine alari pallidè flavo.

Hab. in insulis Philippinensibus et in insulis "Sanghir" dictis.

Adult Male. Similar in plumage to *A. malaccensis*, excepting that the breast is shaded with olive-green, most strongly so on the sides of the breast, flanks, and under tail-coverts, the bright yellow pectoral tufts contrast strongly with the olive-green colouring of the breast: the chin and throat are identical in colour with those of *A. malaccensis*. Total length 5·2 inches, culmen 0·8, wing 2·75, tail 2·0, tarsus 0·7.

Adult Female. Upper parts olive-green, including the least series of wing-coverts; remainder of the wings and the tail dark brown, the feathers edged with olive-yellow; sides of the head olive-green, with a portion of the cheek, space in front of the eye, and a partial eyebrow yellowish buff; chin and upper half of the throat buff, the lower half and the sides merging into olive-shaded yellow; remainder of the under surface of the body similar to that of the adult male, excepting that the yellow pectoral tufts are absent, and the feathers at the bend of the wing are very pale yellow. Total length 4·5 inches, culmen 0·75, wing 2·65, tail 1·75, tarsus 0·7.

HAB. The island of Negros, in the Philippines, and the Sanghir Islands.

THIS species is distinguished from the other closely allied Brown-throated Sun-birds by its larger size. It is very similar in colouring to *A. malaccensis*, excepting that the breast is strongly shaded with olive-green, from which character it has derived its name, the colouring of the breast being almost intermediate between that of the above-named species and *A. celebensis*, while, like the latter, the pectoral tufts contrast strongly with the surrounding breast-plumes: this is not the case in *A. malaccensis*.

Mr. Sharpe first described this species as new from two specimens collected by Dr. Steere in the island of Negros, one of the Philippines. One of these type specimens, now in the British Museum, I have described above, and have compared it with five specimens collected by Dr. Meyer at Siao, one of the Sanghir Islands. Three of these specimens from Sanghir are fully plumaged males, and agree perfectly with the type of this species; a fourth I have

described as the adult female; but the sex is not marked on the label, and it agrees perfectly with the fifth specimen, which, from the structure of the feathers upon the flanks, is a young bird.

Count Salvadori has examined two specimens collected by Bruijn on the island of Petta, one of the Sanghir group, and observes that, like the other Sanghir specimens, they differ from those from other localities in their larger size and in the more olive-yellow colouring of their abdomen.

I have figured one of Dr. Meyer's adult male specimens from Siao, in company with the male and female of *A. celebensis*, the upper figure representing the present species.

ANTHREPTES CELEBENSIS.

(CELEBES BROWN-THROATED SUN-BIRD.)

Nectarinia lepida, pt., Müll. & Schl. Verh. Natuurl. Gesch. p. 63, no. 13 (1846); Finsch, Neu-Guinea, p. 163 (1865, pt.).

Anthreptes malaccensis, pt., Moore, P. Z. S. 1859, p. 461; Walden, Ibis, 1870, p. 47; id. Trans. Zool. Soc. viii, p. 70 (1871); Salvad. Ann. Mus. Civic. Genova, v, p. 178 (1874); Brügg. Abhandl. nat. Vercine zu, Bremen, v, p. 72, no. 76 (1876).

Anthreptes lepida, Wallace, P. Z. S. 1862, pp. 335, 343.

Anthothreptes malaccensis, pt., Salvad. Ann. Mus. Civic. Genova, vii, p. 661 (1875); id. Atti R. Acc. Tor. xii, p. 320 (1877).

♂ similis *A. malaccensis*, sed subtus olivascenti-flavus, ut in *A. rhodolæmä* coloratus, hypochondriis vix cinerascente adumbratis, fasciis pectoralibus latè flavis, gutture ut in *A. malaccensis* colorato, vix saturatiore, diversus.

♀ suprâ brunnescenti-cinerascens, vix olivaceo tineta, tectricibus minimis dorso concoloribus: scapularibus, dorso postico et supracandalibus magis olivascentibus: remigibus et rectricibus saturatè brunneis, brunnescenti-flavo marginatis: capite laterali cinerascente: maculâ triangulari anteculari, supercilio strigâque angustâ infraoculari albis: subtus pallidè flavicanti-fulva: gulâ albidâ: pectore laterali et hypochondriis vix cinerascente tinctis.

Hab. in insulis "Celebes" et "Sula" dictis.

Adult Male. Similar in plumage to *A. malaccensis*, excepting that the breast is olive-yellow, slightly paler on the abdomen and under tail-coverts, and of a more ashy shade on the flanks; the bright yellow pectoral tufts contrast very strongly with the olive colouring of the breast; the chin and throat are slightly darker and more rufous. Total length 4·7 inches, culmen 0·7, wing 2·65, tail 1·8, tarsus 0·65.

Adult Female. Upper parts, including the least series of wing-coverts, brownish ash, slightly tinted with olive, the olive shade being a little stronger on the scapulars, lower back, and upper tail-coverts; remainder of the wings and the tail dark brown, the feathers edged with brownish yellow; sides of the head ashy; a triangular patch in front of the eye, an eyebrow, and a narrow streak beneath the eye white; underparts pale yellowish buff; chin and throat white, sides of the chest and the flanks slightly tinted with ash. Total length 4·7 inches, culmen 0·7, wing 2·6, tail 1·65, tarsus 0·65.

Young Female. Differs from the adult in having the upper parts and sides of the head olive; those portions which in the adult are white are in this specimen pale yellow; breast yellow, slightly shaded on the sides of the chest and on the flanks with olive. Total length 4·2 inches, culmen 0·55, wing 2·6, tail 1·6, tarsus 0·65.

HAB. Celebes and Sula Islands.

THE present species, although closely allied to *A. malaccensis*, may be readily recognized by the strong olive shade of the breast, which causes the bright yellow pectoral tufts to stand out in

bold relief. By this character it more nearly approaches *A. chlorigastra*, but has the breast slightly darker than in that bird, and is decidedly smaller in size, as the measurements above given will show. The plumage, again, of the female is very different from either of these other species, if indeed we are correct in our supposed adult female of *A. chlorigastra*.

This species was first recorded from Celebes by Müller, and appears to be abundant throughout that island. It has also been collected in the Togian Islands, in the Gulf of Tomine, by Dr. Meyer—and in the Sula Islands by Mr. Wallace, who observes:—"This is the furthest eastward range of the species, which does not reach the Moluccas."

Count Salvadori has recorded it from Kandari (*Beccari*) and from Menado (*Bruijn*), and was the first to suggest the probability that the birds from Celebes, Sula, Sanghir, and the Philippines would prove to be distinct from *A. malaccensis*.

Dr. Meyer has kindly submitted to me for examination three males and four females collected by himself at Macassar and Batubassi in the south, and at Menado, Limboth, and the Togian Islands in the north. I have also seen other females of his collecting, and a young male from Celebes in the Marquis of Tweeddale's collection; and the characters as above mentioned I find to be perfectly constant in all the birds examined.

The specimens here figured and described are an adult male from Macassar, in the Dresden Museum, and a female from the Togian Islands in the Marquis of Tweeddale's collection.



ANTHREPTES GRISEIGULARIS.

(GREY-THROATED SUN-BIRD.)

Anthothreptes griseigularis, Tweeddale, P. Z. S. 1877, pp. 817, 830, 1878, p. 113.

♂ *ad.* suprâ metallicè viridis, vix lilacino-bronzino nitens: tectricibus alarum minimis et scapularibus dorso concoloribus, medianis nitidè chalybeis: majoribus et scapularibus imis castaneis: remigibus saturatè brunneis, extûs castaneo lavatis vix olivascens: uropygio et supracaudalibus chalybeis violaceo nitentibus: rectricibus nigris, metallicè viridi limbatis: loris et capite laterali castaneis minimè olivaceo lavatis: fasciâ mystacali chalybeâ, viridi marmoratâ: gutture toto cinerascens, cano lavato: corpore reliquo subtûs, tibiis et subcaudalibus olivascens-flavis: fasciis pectoralibus lætè et conspicuè flavis: subalaribus albidis: remigibus infrâ brunneis, intûs albidis: rostro nigro: pedibus virescenti-cinereis: iride rubrâ.

♀ *ad.* suprâ sordidè cinerascens, olivascens tincta, plumis medialiter saturatioribus: scapularibus et dorso postico olivaceis: alis saturatè brunneis, pennis olivaceo extûs lavatis: tectricibus medianis et majoribus, scapularibus paucis longioribus et secundariarum intimarum marginibus rufescenti-brunneis: rectricibus nigris, rufescenti-brunneo marginatis: capitis lateribus et gutturis lateribus saturatè cinerascens: mento et gutture medio medialiter canescentibus: gutture imo cinerascens lavato: corpore reliquo subtûs olivascens-flavo: subalaribus albis: remigibus infrâ saturatè brunneis, intûs albidis.

Hab. in insulis Philippinensibus "Surigao" et "Sukuyok" dictis, et "Placer" in insulâ Mindanensi.

Adult Male. Upper parts metallic green glossed with lilac-bronze; wings dark brown, the least series of coverts steel-blue shaded with violet; median series of wing-coverts and the lower scapulars broadly tipped with chestnut-brown; the greater coverts more narrowly edged with the same colour, and the quills edged with a more olive-shaded chestnut; lower back and upper tail-coverts steel-blue glossed with violet; tail black, the feathers edged with metallic green; sides of the head olive-shaded chestnut; moustachial band steel-blue mottled with metallic green; chin and throat ashy grey with a white reflection; under surface of the body, thighs, and under tail-coverts olive-shaded yellow; pectoral tufts bright yellow; under surface of the wings dark brown with the inner margins of the quills and the coverts white; bill black; irides red; legs greenish grey. Total length 4.4 inches, culmen 0.65, wing 2.55, tail 1.6, tarsus 0.65.

Adult Female. Upper half of the head, back of the neck, and upper back ashy brown tinted with olive and with the centres of the feathers darker; scapulars and lower back olive; wings dark brown, the least series of coverts and the quills edged with olive, the median and greater series of coverts, as well as a few of the greater scapulars and the inner quills, edged with rufous brown; tail black, the feathers edged with rufous brown; sides of the head and sides of the throat ashy; chin and centre of the throat white; base of the throat ashy white; breast, abdomen, and under tail-coverts olive-shaded yellow; under surface of the wings dark brown with the inner margins of the quills and the coverts white; bill black; irides red; legs greenish grey. Total length 4.3 inches, culmen 0.6, wing 2.35, tail 1.6, tarsus 0.6.

Immature Female. Upper parts olive-green; wings and tail dark brown, the feathers edged with rufous-shaded olive; feathers in front of the eye, eyebrow, cheeks, and portion of the ear-coverts pale yellow; entire throat and under surface of the body olive-shaded yellow; upper mandible dark brown, lower one light brown; gape orange; irides dark brown; legs greenish; nails brown; soles of the feet ochre. Total length 4.1 inches, culmen 0.6, wing 2.3, tail 1.6, tarsus 0.6.

HAB. Islands of Surigao and Sukuyok, and Placer in the north-east of Mindanao.

THE Grey-throated Sun-bird is closely allied to *Anthreptes malaccensis*, from which the adult male may be at once distinguished by the ashy-grey colouring of the throat. In the type specimen before me the metallic green and blue portions of the plumage are less glossed with lilac than in *A. malaccensis*, and the sides of the head are more rufous; but these characters are possibly not constant. The yellow of the breast is of a decidedly more olive shade, causing the pectoral tufts to contrast strongly; and in this respect the species is very similar to *A. chlorigastra*.

A female from Surigao, collected in May, I have figured and described as an adult: its plumage most nearly approaches to that of *A. celebensis*; but the rufous edges to many of the wing-feathers and to the tail-feathers are a well-marked character, which, however, may not prove to be very constant.

The specimen figured and described as the immature female was collected at Placer, a village on the extreme north-east of Mindanao, in July 1877, and agrees with the young female of *A. celebensis* already described, and only differs from that of *A. malaccensis* in the slightly more olive shade on the breast.

The three specimens above figured and described were collected by Mr. A. Everett, from whose notes I have taken the sexes and the colouring of the soft parts. They are now in the Marquis of Tweeddale's cabinet.

Previous to the publication of the first part of my present work, in July 1876, only one species of this group of *Anthreptes* was recognized. We have now distinguished no less than five; and many of the other groups of Sun-birds are in like manner rapidly increasing, especially from the active researches which are now going on in the Philippine Islands, to which Dr. Steere's recent acquisitions have given such a strong impulse.

With regard to the habits of *A. griseigularis* we may safely presume that they closely resemble those of *A. malaccensis*, and that the species is not uncommon in its native district, which is, as far as we at present know, restricted to the islands of Surigao and Sukuyok and the north-eastern portion of the large island of Mindanao. It may inhabit the entire island of Mindanao; but we suspect that the ordinary form of *Anthreptes* on that island will prove to be *A. chlorigastra*, which is known to inhabit Negros and the Sanghir Islands.



ANTHREPTES PHÆNICOTIS.

(RUBY-CHEEKED SUN-BIRD.)

Green Warbler, Brown, Zool. Ill. p. 82, pl. 32, fig. 2 (1776).

Cingalese Warbler, Lath. Gen. Syn. ii, p. 474 (1783).

Yellow-bellied Creeper, Lath. Syn. Supp. i, p. 131 (1787).

Motacilla singalensis, Gmel. S. N. i, p. 964, no. 86 (1788).

Sylvia cingalensis, Lath. Ind. Orn. ii, p. 533, no. 92 (1790).

Certhia lepida, Lath. Ind. Orn. i, p. 299, no. 60, var. β (1790).

Nectarinia phœnicotis, Temm. Pl. Col. 108, fig. 1, 388, fig. 2 (1824); S. Müll. & Schl. Verh.

Nat. Gesch. Aves, p. 63, no. 15 (1846); Low, Sarawak, p. 410 (1848); Blyth, Cat. B.

Mus. A. S. B. p. 225, no. 1363 (1849); Sclater, P. Z. S. 1863, p. 220.

Cinnyris phœnicotis, Less. Man. d'Orn. ii, p. 38 (1828); id. Traité d'Orn. i, p. 298; Bp.

Consp. Av. i, p. 408, no. 40 (1850).

Anthreptes rectirostris, Blyth, J. A. S. B. x, p. 925 (1841).

Anthreptes phœnicotis, Blyth, J. A. S. B. xii, p. 979 (1843), xiv, p. 557 (1845); Licht.

Nomencl. p. 56 (1854).

Nectarinia cingalensis, Gray, Gen. B. i, p. 99, no. 96 (1847); Motl. & Dillw. Contr. Nat. Hist.

Labuan, p. 16 (1855); Pelzeln, Reise Novara, Vög. i, p. 52 (1865).

Chalcoparia cingalensis, Cab. Mus. Hein. i, p. 103, note (1850); Bp. Comptes Rendus, xxxix,

p. 265 (1854); Reichb. Handb. Scansoriæ, p. 304, no. 713, pl. 587, figs. 3987-88 (1854);

Jerdon, Ibis, 1872, p. 17; Sharpe, P. Z. S. 1875, p. 106; Hume, Str. F. 1875, p. 86;

Armstrong, Str. F. 1876, p. 313.

Chalcoparia phœnicotis, Bp. Comptes Rendus, xxxix, p. 265 (1854); Horsf. & Moore, Cat.

B. Mus. E.I. Co. ii, p. 747 (1856); Moore, P. Z. S. 1859, p. 463; Blyth & Walden, Cat.

Mamm. & Birds Burma, p. 142, no. 497 (1875); Tweeddale, Ibis, 1877, p. 303; Oates,

Str. F. 1877, p. 147.

Anthreptes singalensis, Walden, P. Z. S. 1866, p. 543; Brügg. Abhandl. Ver. Bremen, v,

p. 458 (1877); Hume, Str. F. 1877, p. 28.

Promerops singalensis, Gray, Hand-l. B. i, p. 111, no. 1364 (1869).

Chalcoparia singalensis, Walden, Ibis, 1870, p. 48; Salvad. Ann. Mus. Civ. Genova, v, p. 180

(1874); Bouvier, Bull. Soc. Zool. France, 1877, p. 300.

ad. suprâ metallicè viridis, collo laterali, tectricibus alarum minimis et medianis dorso concoloribus, tectricibus majoribus nigris metallicè viridi marginatis: remigibus nigris, metallicè violaceo extûs marginatis: rectricibus nigris viridi limbatis: loris nigricantibus: regione posticâ metallicè coccineâ, infrâ vittâ conspicuâ metallicè lilacinâ marginatâ: genis et corpore subtûs lætè cervinis: corpore reliquo subtûs viridescenti-flavo: subalaribus albis: rostro nigro: pedibus viridescenti-corneis: iride coccineâ.

♀ *ad.* subtùs ut in mare colorata sed dilutior : suprà viridescens : pileo et facie laterali magis cinerascens : tectricibus alarum majoribus, remigibus et rectricibus olivascens-flavo marginatis.

Hab. in regione Indo-sinensi et in regione Indo-Malayanâ.

Adult Male. Upper parts rich metallic green, including the least and median series of wing-coverts and broad margins to the greater wing-coverts and tail-feathers; remainder of the wings and tail black, the quills more or less glossed with metallic violet on their outer webs; sides of the head, including the upper cyclid, ruby-copper, margined beneath by a band of metallic lilac, shaded with steel-blue; the feathers in front of the eye and the front of the cheeks black; chin, throat, and front of the chest fawn-colour; remainder of the under surface of the body and the under tail-coverts yellow, slightly tinted with olive, excepting on the pectoral tufts; under surface of the wings black, with the inner margins of the quills and the coverts white, the latter slightly shaded with yellow. Total length 4.2 inches, culmen 0.5, wing 2.1, tail 1.75, tarsus 0.65.

Adult Female. Upper parts, including the least and median series of wing-coverts ash-brown, strongly shaded with olive-green, especially on the crown, mantle, and lower back; upper tail-coverts entirely olive-green; remainder of the wings and the tail dark brown, with broad olive-yellow margins to the greater wing-coverts, quills, and tail-feathers; sides of the head similar in colour to the back, but rather more ashy; the underparts are similar to those of the adult male, excepting that the fawn-colour on the throat is paler and more buff, and does not extend so far onto the chest. Total length 3.6 inches, culmen 0.5, wing 2, tail 1.6, tarsus 0.6.

HAB. Bhootan, Assam, Silhet, Tipperah, Arracan, Southern Pegu, Tenasserim, Malay peninsula, Sumatra, Java, and Borneo.

It appears to be generally allowed that the time has arrived for rejecting names founded evidently upon an error in locality. I therefore adopt Temminck's title of *phœnicotis* for this species instead of the older one of *singalensis* given to it by Gmelin under the erroneous impression that the bird came from Ceylon.

This beautiful species may be readily distinguished by its small size and short, straight bill, and the rufous colouring of the throat and front of the breast in both sexes. It is the only eastern Sun-bird in which the entire upper parts, in the male, are metallic green; and another unmistakable character is the ruby copper-colour of the sides of the head, a character which suggested the appropriate title of *phœnicotis*.

Messrs. Hume and Davison write to me:—"The most northern point from which this species has been obtained is the Bhootan Doars; thence it stretches southward along the Brahmapootra, and thence eastward across into Assam, the Khasia hills, Myman Sing, Sylhet, Cachar, Dacca, Tipperah, Chittagong, Arracan, and Pegu—avoiding, however, the dry northern portion of the latter province, but being common enough about Rangoon and the neighbourhood of Sittang, where Mr. Oates has found it breeding, and has taken many nests,—throughout the entire length of Tenasserim from Tonghoo to the Pakchan, and thence southward throughout the Malay peninsula to Jahore and Singapore.

"It is common in the lower portion of Pegu, about Moulmein, and southward to the Pakchan estuary; but it is much rarer both to the north and south of this tract of country, which appears to be (on the mainland, at any rate) its head quarters.

"In its habits this species differs conspicuously from all its congeners, reminding one very much of the 'White-eye' (*Zosterops palpebrosus*), or, again, of *Cyanoderma erythropterum*.

"Excepting perhaps during the breeding-season, it goes about in small parties of from five to ten amongst the undergrowth or the skirts of the forest, or in the shrub jungle, hunting amongst the foliage and roots of the trees for insects, on which it chiefly subsists, keeping up the while an incessant twittering.

"Of other species of Sun-birds a dozen, or even at times fifty, may be seen about a single tree; but in the case of these there is never any concerted action between more than a single pair. They do not go about in flocks, though many individuals may happen to collect in a single place; but the present species, when not breeding, is almost always seen in flocks working together in concert, invariably moving away from one place to another at the same time, and hunting, some high and some low, just as a mob of our Titmice on the Himalayas may often be seen doing.

"*Male*. Length 4.25 to 4.62 inches, expanse 6.75 to 7, tail from vent 1.5 to 1.75, wing 2 to 2.12, tarsus 0.62 to 0.75, bill from gape 0.6 to 0.62, weight 0.25 to 0.3 ounce.

"*Female*. Length 4.25 to 4.3 inches, expanse 6.5 to 6.75, tail 1.6, wing 1.82 to 2.12, tarsus 0.6 to 0.62, bill from gape 0.55 to 0.6.

"The legs and feet are dark brownish green, or greenish horn-colour, the feet sometimes paler, the claws dirty green; the bill black, or dark horny brown, paler at the angle of the gonys, the gape yellowish, the base sometimes reddish brown; the irides in some dark brown, in others crimson-lake: this, as in *Anthreptes malaccensis*, is not dependent, apparently, either on sex or age."

Mr. Hume writes (Str. F. 1875, p. 86):—"It is very common in the Tipperah district, from whence, as well as from Malacca, Tenasserim, Dacca, and Assam, I have received many specimens."

Mr. Oates writes to me that this bird is common throughout Lower Pegu; and, according to Mr. Blyth, it appears also to be common at Singapore.

It has been recorded by both Temminck and S. Müller from Sumatra and Java, and in the former island has recently been collected by Mr. E. C. Buxton in the district of Lampong.

It is apparently spread throughout Borneo, having been collected by Mr. Motley at Banjer-massing, by Doria and Beccari at Sarawak, and by Messrs. Everett, Low, and Governor Ussher along the north-west coast, whence I received the specimens here figured and described.

In Labuan, according to Messrs. Motley and Dillwyn, "these birds are usually seen in small flocks, and frequent tall *Casuarina*, among which they busy themselves running about, up and down the branches, like Tits; their note is a shrill chirp. The stomachs of the specimens we have obtained were completely crammed with the pollen of the *Casuarina*."

With regard to its domestic economy, Mr. Oates writes:—"This Sun-bird appears to nidificate from the middle of May to about the end of July. On the 3rd June I found a nest with two eggs nearly hatched. It was suspended from a branch of a mango-tree, about twenty feet from the ground, and well surrounded by leaves. On the 25th June another nest was found, from which the young had apparently just flown. It was about eight feet from the ground. On July 6th a nest, with two nearly fresh eggs, was discovered hanging on a shrub about four feet

high, and on the 8th of the same month another, quite complete, but with no eggs. It was attached to the extreme tip of a bamboo, about twenty-five feet from the ground.

"The eggs appear to be always two in number. Three eggs measured 0.66, 0.64 and 0.63 inch in length by 0.46, 0.43, and 0.44 in breadth respectively. They have little or no gloss. The ground-colour is pinkish white; and the whole shell is thickly streaked and otherwise marked with brown, in which a purplish tinge is distinctly visible. The marks are very evenly distributed; but round the thicker end they tend to coalesce and form a more or less distinct ring. Very little of the ground-colour is visible.

"The nest is a very lovely structure, closely resembling that of *Ploceus baya* in shape, with the tube cut off at the level of the bottom of the nest. At a short distance off, it looks like a mass of hair-combings. Three nests are composed throughout of black hair-like fibres, very closely woven. With these are intermingled numerous small cocoons, pieces of bark, a few twigs here and there, and large lumps of the excreta of caterpillars. The interior is sparingly lined with fine grass. The fourth nest was made almost entirely of strips of grass, a very small quantity only of black fibres being used. Some huge pieces of bark, nearly as large as the bird itself, were suspended by cobwebs from the lower part of the nest.

"The nest is pear-shaped, about six inches in height, and barely three inches outside diameter at the thickest part. The upper two inches are solid. The entrance is about halfway down, and measures 1.5 by 1.0 inch. The bottom of the egg-chamber is about one inch below the tip of the entrance; and the thickness of the wall everywhere is about one third of an inch. The wonderful part of the nest is the verandah or portico. This springs from the upper edge of the entrance, and extends to two or three inches below the bottom of the nest. Laterally it extends to rather more than the width of the nest; and the sides are incorporated with the main structure all the way down. It is made of the same materials as the other portions, is about a quarter of an inch thick, and very strongly woven and elastic."

Mr. Oates has kindly presented me with one of these nests, taken by him in Lower Pegu on the 6th of July 1876. It is suspended from a green leafy bough, and is entirely constructed of fine brown and black bark-fibres, with a few shreds of bark interwoven or suspended from the lower portion. It has a very large and peculiar portico, which entirely surrounds the upper part and sides of the entrance-hole, and so completely covers it that it is only visible directly from below. The nest measures 5.5 inches, exclusive of the few pendent shreds of bark, and is 3 inches wide, measured across the entrance: the portico projects 1 inch, and is about 2.75 long. The nest is internally about 1.5 inch deep, and is solid, although thinly constructed.

I have examined specimens collected by Mr. Wardlaw Ramsay from Tonghoo and Rangoon, by Major Godwin-Austen from the Garo hills, and a good series from Moulmein, Malacca, Sumatra, and Borneo, and can detect no signs of there being any local races.

According to Mr. Wallace (Ibis, 1870, p. 49), "this species has the tongue short, triangular, horny at the tip, and entire." This statement appears to me remarkable, as in every other respect it agrees well with the genus *Anthreptes*, the gregarious habits being also exhibited in some of the small African species, as, for instance, in *A. hypodilus*, which I have occasionally seen in flocks on the Gold Coast.



ANTHREPTES ANCHITÆ

ANTHREPTES ANCHIETÆ

(ANCHIETA'S SUN-BIRD.)

Nectarinia anchieta, Bocage, Journ. Lisbon, 1878, p. 1.

Ad. suprà fuscescenti-brunneus, supracaudalibus olivaceo marginatis: alis dorso concoloribus, primariis pallidè brunneo limbatis: rectricibus brunneis vix olivaceo limbatis: plumis paucis frontalibus chalybeis: facie laterali genisque dorso concoloribus: gutture et jugulo chalybeis: corpore reliquo subtùs et præpectoris lateribus sulfureis, hypochondriis olivacentibus: pectore medio et subcaudalibus miniatis: subalaribus flavicanti-albidis: axillaribus pallidè flavis: remigibus infrà cinerascens, intùs albicantibus: rostro et pedibus nigris: iride saturatè brunneâ.

Hab. in prov. Benguelensi Africæ occidentalis.

Male. Upper parts dusky brown, as well as the sides of the head and neck; feathers of the forehead and front of the crown broadly edged with steel-blue glossed with green; lower back and upper tail-coverts shaded with olive; wings dark brown with paler brown edges to the quills; tail-feathers dark brown with very narrow pale edges; chin and throat blackish brown with broad steel-blue edges to the feathers of the throat; chest sulphur-yellow on the sides, with a broad central band of bright scarlet; abdomen and thighs pale olive-yellow shading into sulphur-yellow towards the centre; under tail-coverts orange-red; under surface of the wings dark brown with pale inner margins to the quills and with the coverts mottled with ashy white; bill and legs black; irides dark brown. Total length 4.6 inches, culmen 0.5, wing 2.4, tail 1.6, tarsus 0.7.

HAB. Benguela.

THE straight keel to the under mandible refers this species to the genus *Anthreptes*; and its very short bill is a well-marked character. The metallic portions of its plumage are confined to the forehead, front half of the crown, and the throat; a broad band down the centre of the chest, and the under tail-coverts are red, and the sides of the chest bright sulphur-yellow. The specimen before me is in imperfect plumage; but these characters would probably all remain constant or but slightly modified; and being such a well-marked species, it is never likely to be confounded with any other at present known.

A single specimen of this form was collected by Señor Anchieta in October 1877, at Caconda, in the interior of Benguela, where, according to the label, it is known to the natives as "Xinjongo." The type, which I have here described, and of which I have given two figures, was kindly lent to me by Professor Barboza du Bocage, who informs me that Señor Anchieta has sent home in his last collection additional specimens of this species as well as of *Nectarinia bocagii*.



ANTHODIÆTA RECTIROSTRIS.

(GREY-CHESTED COLLARED SUN-BIRD.)

Soui-manga à bec droit, Audeb. et Vieill. Ois. Dor. ii. p. 112, pl. 75 (1802).

Certhia rectirostris, Shaw, Gen. Zool. viii. p. 246 (1811, ex Aud. et Vieill.); Bechst. Kurze Uebers. p. 194. no. 84 (1812).

Cinnyris rectirostris, Cuv. Règn. Anim. i. p. 412 (1817); Bp. Consp. Av. i. p. 405. no. 16 (1850).

Cinnyris elegans, Vieill. N. Dict. d'Hist. Nat. xxxi. p. 506 (1819); Bonn. et Vieill. Enc. Méth. ii. p. 590 (1823); Vieill. et Oud. Gal. Ois. i. p. 292, pl. 178 (1825); Less. Man. d'Orn. ii. p. 60 (1828); id. Traité, p. 298 (1831).

Strait-billed Creeper, Lath. Gen. Hist. iv. p. 259. no. 61 (1822).

Nectarinia rectirostris, Jard. Monogr. Sun-birds, p. 271 (1843); Müll. J. f. O. 1855, p. 15. no. 165; Gray, Hand-l. B. i. p. 109. no. 1335 (1869).

Euchloridia rectirostris, Reichb. Hand. Scansoriæ, p. 312. no. 730, pl. 590. fig. 4003 (1854).

Nectarinia phæothorax, Hartl. J. f. O. 1861, p. 108; Gray, Hand-l. B. i. p. 107. no. 1296 (1869); Sharpe, Cat. Afr. B. p. 41. no. 383 (1871).

Nectarinia fantensis, Sharpe, Ibis, 1870, pp. 52, 474; Hartl. l. c. p. 443.

Nectarinia tephrolæma (juv.), Sharpe, Ibis, 1872, p. 69.

♂ *ad.* suprâ metallicè cupreo-viridis, vix cyaneo nitens, tectricibus alarum dorso concoloribus, majoribus extûs cupreo marginatis: remigibus saturatè brunneis, extûs olivaceo limbatis, secundariis intimis vix metallicè viridi marginatis: caudâ nigricante, olivascenti-flavo vel metallicè viridi marginatâ: facie laterali metallicè cupreo-viridi, pileo concolori: gulâ flavâ: torque jugulari metallicè viridi, alterâ præpectoralis aurantiacâ: pectore cinereo, abdomine et corporis lateribus olivascenti-flavis, subcaudalibus latoribus flavis: fasciculis pectoralibus lætè flavis: subalaribus albidis flavo lavatis: rostro et pedibus nigris: iride saturatè brunneâ.

♀ *ad.* mari dissimilis: suprâ olivacea: supercilio et fasciâ suboculari sulfureis: remigibus brunneis, olivascenti-flavo marginatis: suprâ fulvescenti-flava.

♂ *juv.* similis fœminæ adultæ, sed paullò metallicè lavatus: gulâ cinerascenti-albâ: corpore reliquo subtûs sulfureo.

Hab. in Africâ occidentali.

Adult Male. Upper parts metallic golden green, shading into olive-yellow on the lower back and upper tail-coverts; sides of the head and neck metallic golden green, as are also the least and median wing-coverts; a black patch in front of the eye; remainder of the wings and the tail dark brown, the feathers edged with olive-yellow; chin and upper throat yellow, ending in a semicircle bordered by a broad metallic-green collar on the lower throat, beneath which is a partial orange-yellow belt; remainder of the under surface of the body ashy, shaded with yellow on the abdomen, thighs, and under tail-coverts; pectoral tufts sulphur-yellow; under surface of the wings brown, with the coverts and inner margins of the quills white; irides dark brown; bill and legs black. Total length 4 inches, culmen 0.5, wing 2.2, tail 1.4, tarsus 0.6.

Adult Female. Upper parts olive, as well as the sides of the head and neck, the wing-coverts, and the tail; eyebrow and a streak below the eye sulphur-yellow; quills edged with pale olive-yellow; underparts nearly uniform buffish yellow; under surface of the wings dark brown, with the coverts and inner margins of the quills white, the former washed with sulphur-yellow. Total length 3·4 inches, culmen 0·55, wing 1·85, tail 1·2, tarsus 0·6.

Young Male. Similar to the adult female, but partially glossed with the metallic green of the adult plumage; back of the head and nape shaded with ash; eyebrow and feathers encircling the eye pale yellow; chin and throat ashy white; breast, abdomen, and under tail-coverts sulphur-yellow. Total length 3·70 inches, culmen 0·5, wing 2, tail 1·4, tarsus 0·6.

HAB. Western Africa.

In the genus *Anthodiæta* there are two minor groups in which the adult males have the plumage of the upper parts metallic green: in one of these, which includes *A. collaris*, *A. hypodila*, and *A. zambesiana*, the females and young have the upper parts similar to those of the adult male; in the other, to which the present species and *A. tephrolæma* belong, the females and young have the upper parts non-metallic. The adult male of this species may be readily recognized by the yellow chin and upper throat encircled by metallic-green plumes which cover the lower throat and sides of the neck.

It inhabits West Africa, north of the line; and, with the exception of an immature male labelled "Gambia" in the British Museum, I am not acquainted with an instance of its capture beyond the Gold-Coast district—from Cape-Coast Castle to Aguapim. In the latter district I met with it myself on one occasion while returning to Abouri from a neighbouring village, where the monkeys were held "fetish" or sacred. In a flowering creeper which overhung the path, and caught the rays of the sun as it gleamed through the thick forest, I saw a tiny bird actively searching beneath the leaves; and from its habits, had I not shot the specimen, I should have mistaken it for *A. hypodila*.

Although this bird is generally known by Dr. Hartlaub's title of *phæothorax*, that name must give place to the older one, *rectirostris* of Shaw, which was described in 1811 from Audebert and Vieillot's plate in the 'Oiseaux Dorés.' The description there given, although agreeing sufficiently with this bird, is not very clear; and the figure is liable to mislead, as the green base to the throat and the reddish yellow partial collar are hidden.

In the 'Galerie des Oiseaux,' however, the figure is very good and quite unmistakable; and the description there given is the same as in the 'Oiseaux Dorés;' so that the two illustrations undoubtedly belong to the same species, and may have been taken from the same specimen.

As has been shown by Dr. Hartlaub, Mr. Sharpe's title of *fantensis* also sinks into a synonym. From an examination of the specimens in Mr. Sharpe's collection, I find that the bird on the strength of which he introduced *A. tephrolæma* as an inhabitant of the Gold-Coast district is an immature example of *A. rectirostris*. He tells me that M. Jules Verreaux agreed with him in the determination; but, notwithstanding the authority of two such good naturalists, I have no doubt as to the species to which the example belongs. Dr. Hartlaub described his *Nectarinia phæothorax* from two specimens in the Bremen Museum from Ashantee.



ANTHREPTES LONGUEMARII.

(LONGUEMARE'S SUN-BIRD.)

- Cinnyris longuemarii*, Less. Bull. Soc. Nat. xxv, p. 242 (1831); id. Ill. Zool. pl. 23 (1831).
Anthreptes leucosoma, Swains. B. W. Afr. ii, p. 146, pl. 17 (1837); Allen & Thompson, Exped. Niger, i, p. 250 (1848).
Cinnyricincla leucosoma, La Fresnaye, Rev. Zool. 1840, p. 272; Reichb. Handb. Scansoriæ, p. 305, no. 715, pl. 588, figs. 3993-94 (1854).
Nectarinia longuemarii, Gray, Gen. B. i, p. 99, no. 99 (1847); Müll. J. f. O. 1855, p. 193; Hartm. J. f. O. 1865, p. 76, 1866, p. 207; Heugl. J. f. O. 1867, p. 202; id. Reise Weissen Nil, p. 337 (1869); id. Orn. N.O.-Afr. p. 234 (1871); Bocage, Journ. Lisb. 1878, p. 2.
Anthreptes longuemarii, Bp. Consp. Av. i, p. 409, no. 4 (1850); Hartl. J. f. O. 1854, p. 13; id. Orn. W.-Afr. p. 53 (1857); Heugl. J. f. O. 1864, p. 263; Sharpe, Cat. Afr. B. p. 41, no. 386 (1871); Bouvier, Cat. Ois. Marche, &c. p. 14 (1875).

♂ *ad.* suprâ pulchrè metallicè violaceus, tectricibus alarum minimis dorso concoloribus: alâ reliquâ brunneâ, tectricibus medianis violaceo obscurè marginatis: caudâ violascente, rectricibus medianis et externis brunnescentioribus: facie laterali saturatè brunneâ: gulâ violaceâ chalybeo lavatâ: gulâ imâ et corpore reliquo subtùs albis: fasciis pectoralibus flavis: subalaribus albis: rostro, pedibus et iride saturatè brunneis.

♀ *ad.* mari dissimilis: suprâ cinerascenti-brunnea, supracaudalibus tantùm chalybeo-violaceis: caudâ violaceâ, rectricibus extimâ brunnescentiore et ad apicem pogonii interni angustè albo marginatâ: alâ paullò saturatiore, primariis sordidè olivaceo marginatis: facie laterali saturatiùs brunneâ: supercilio albo: genis et corpore reliquo subtùs albis, hypochondriis imis, crisso et subcaudalibus flavis: subalaribus albis vix flavo lavatis.

Hab. in Africâ occidentali et septentrionali-orientali.

Adult Male. Upper parts metallic bluish violet; wings dark brown, the least series of wing-coverts metallic bluish violet, with a few of the outermost ones metallic green; median series of wing-coverts narrowly edged with metallic violet; tail dark brown washed with metallic violet, and with metallic violet edges to the feathers; sides of the head and sides of the neck dark brown; underparts white; chin and throat metallic bluish violet; pectoral tufts sulphur-yellow; under surface of the wings dark brown, with the coverts white, mottled along the bend of the wing with dark brown; bill brown, paler towards the base of the lower mandible; irides and legs dark brown. Total length 4·9 inches, culmen 0·65, wing 2·9, tail 2·3, tarsus 0·7.

Adult Female. Upper parts ashy brown; upper tail-coverts metallic bluish violet; tail dark brown washed with metallic violet, and with metallic violet edges to the feathers; a broad white eyebrow; sides of the head and neck and the wings brown; quills slightly edged with yellowish olive; underparts white,

shaded with yellow on the abdomen, flanks, and under tail-coverts. Total length 4·7 inches, culmen 0·6, wing 2·6, tail 2·1, tarsus 0·7.

HAB. Western and North-eastern Africa.

THE adult male of Longuemare's Sun-bird is distinguished by the metallic bluish violet of the upper parts, as well as of the throat, and by the white breast. The female is known by the ashy-brown colouring of the upper parts, a broad white eyebrow, and the metallic violet of the upper tail-coverts and edges of the tail-feathers.

This beautiful species, although by no means common, has an extended range in West Africa, and also occurs in the north-eastern portion of the continent.

In the latter part the Marquis Antinori met with this species below 5° N. lat., in a dense forest which separates the districts inhabited by the Djur and Dor negroes, in the month of February, and considered it to be very rare in that part of Africa. Baron von Heuglin also procured it in the same region on the river Wau both in January and April; in the former month it was in the winter dress, but in April had assumed its full plumage. It lives, he remarks, singly or in pairs, frequenting the bushes and trees near water, and is probably not migratory. It is not shy, but is very restless in its habits, constantly hopping or fluttering from branch to branch, and is frequently seen to descend to the water to drink, especially in the mornings and evenings; and they were never seen in the dry woods. They have a soft, piping call-note; but he never noticed them to have any actual song.

Lesson's type came from the interior of Senegal, where we presume it to be most abundant; for Marche and De Compiègne collected it at Ponte, in Senegal; Swainson's type of *A. leucosoma* came from the Gambia; and M. Verreaux procured it from Casamanse; two of the latter's specimens, now in the British Museum, I have figured and described.

During the expedition to the Niger it was collected in the thickets surrounding Aboh. It is, however, apparently not found on the Gold Coast; and I am not aware of its having been captured in the Cameroon, Gaboon, or Congo districts, although it occurs as far south as Benguela, where it has been collected by Senor Anchieta in the interior in the neighbourhood of Caconda.

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ANTHREPTES AURANTIA.

(VIOLET-TAILED SUN-BIRD.)

Anthreptes aurantium, Verr. Rev. et Mag. Zool. 1851, p. 417; Hartl. J. f. O. 1854, p. 14, no. 129.

Anthreptes aurantius, Strickl. Contr. Orn. 1851, p. 133.

Cinnyricincla aurantia, Reichb. Handb. Scansoriæ, p. 306, no. 716 (1854); Bp. Comptes Rendus, 1854, p. 265.

Nectarinia aurantium, Müll. J. f. O. 1855, p. 16, no. 176.

Anthreptes aurantia, Hartl. Orn. W.-Afr. p. 53 (1857); Cass. Pr. Philad. Acad. 1859, p. 37, no. 48; Du Chaillu, Equat. Afr. p. 472 (1861); Hartl. J. f. O. 1861, p. 110; Sharpe, Cat. Afr. B. p. 41, no. 387 (1871); id. P. Z. S. 1871, pp. 609, 615; Bouvier, Cat. Ois. Marche, p. 14 (1875).

Anthothreptes aurantia, Heine, J. f. O. 1860, p. 138.

Arachnothera aurantia, Gray, Hand-l. B. i, p. 113, no. 1401 (1869).

♂ *ad.* suprâ pulchrè metallicè chalybeus, pileo et interscapulo smaragdineo nitentibus: tectricibus alarum minimis metallicè smaragdineis, medianis et majoribus saturatè brunneis metallicè viridi marginatis: remigibus brunneis, secundariis viridi marginatis: caudâ purpurascenti-violaceâ, rectricibus extimis viridi marginatis: regione parotica et colli lateribus violaceis: genis et gulâ metallicè chalybeis violaceo nitentibus: gulâ imâ et corpore reliquo subtùs albis, fasciis pectoralibus latè aurantiaco-miniat: subalaribus albis, margine alari viridi: remigibus subtùs brunneis intùs albido marginatis.

♀ *ad.* mari dissimilis: suprâ smaragdineâ, vix chalybeo nitens, fronte et dorso postico aureo lavatis: tectricibus alarum dorso concoloribus, majoribus remigibusque saturatè brunneis metallicè viridi angustè marginatis: supracaudalibus latè metallicè chalybeis: caudâ violaceâ: regione parotica pileo concolori: facie laterali reliquâ, guttore toto et præpectore albis: corpore reliquo subtùs dilutè flavo: subalaribus et remigum pogonio interno albidis: axillaribus flavis.

Hab. in plagâ Gabonensi Africæ occidentalis.

Adult Male. Upper parts, as well as the sides of the head and neck and the upper half of the throat, metallic green glossed with steel-blue, most strongly so on the neck, sides of the head, throat, and upper tail-coverts; wings dark brown; least series of wing-coverts metallic green; median and greater series of coverts and the secondaries broadly edged with metallic green; tail dark brown washed with metallic violet and the feathers edged with metallic bluish green; under surface buffish white; chin and upper half of the throat metallic bluish green; pectoral tufts reddish orange; under surface of the wings dark brown, with pale inner margins to the quills, and the coverts white mottled with brown towards the bend of the wing; bill brown, paler towards the base of the lower mandible; irides and legs dark brown. Total length 4·6 inches, culmen 0·6, wing 2·65, tail 2·1, tarsus 0·7.

Adult Female. Upper parts similar to those of the adult male, only with the blue shade on the back of the neck not so strongly pronounced, and with the forehead rather more golden; sides of the head, chin,

and throat white, with a dark triangular patch of feathers in front of the eye; chest, abdomen, flanks, thighs, and under tail-coverts pale yellow; under surface of the wing as in the adult male, only the coverts are slightly tinted with yellow. Length 5 inches, culmen 0·65, wing 2·4, tail 1·8, tarsus 0·7.

HAB. Tropical West Africa.

THE characters which will at once distinguish this species are as follows:—The bill is straight, as is usual in the genus *Anthreptes*; the upper parts in both sexes are metallic green; in the male the chin and throat are metallic green, not terminating in a steel-blue collar, the breast buffish white, and the pectoral tufts reddish orange. In the female the sides of the head, chin, and throat are white, chest and abdomen pale yellow.

An immature specimen of *Anthreptes*, formerly in Mr. Sharpe's collection, and now in the British Museum, from Fernando Po, labelled as a female of *Cinnerys obscurus* by M. J. Verreaux, I refer to this species. It has the upper parts olive shading into ashy brown on the crown and forehead; wings and tail brown with olive-yellow edges to the feathers; sides of the head, chin, and upper half of the throat ashy white; remainder of the underparts pale yellow; under surface of the wings brown, with the inner margins of the quills and the coverts white, the latter slightly tinted with yellow. Total length 4·1 inches, culmen 0·65, wing 2·15, tail 1·4, tarsus 0·65.

This beautiful and very rare Sun-bird is a native of tropical West Africa, where, as far as we know, it is confined to the Gaboon and Cameroons districts and to the island of Fernando Po. Its occurrence in Fernando Po rests upon the immature specimen above referred to. Owing probably to the latter being a female, it differs considerably from the immature male described by Mr. Cassin. "Upper parts dull yellowish green, underparts pale yellow, tinted with very pale ash on the throat, very distinct stripe of pale yellowish white through the eye, tail metallic green, outer feathers tipped with dull white."

On the Cameroons it has been collected by Mr. Crossley, near Victoria Forest, at the end of January.

Verreaux's type came from the Gaboon, where Du Chaillu also collected specimens on the Camma and Ogobai rivers; and Marche and De Compiègne procured it also in that district; but nothing with regard to its habits has yet been recorded.

The adult birds we have figured and described from the specimens in the British Museum—the male coming from the Cameroons, and the female from the Gaboon.



ANTHODIÆTA COLLARIS.

(NATAL COLLARED SUN-BIRD.)

Le Sucrier gamtocin ou à cordon bleu, Levaill. Ois. d'Afr. vi. p. 174, pl. 299 (1808); Sundev. Krit. om Levaill. p. 57 (1857).

Cinnyris collaris, Vieill. N. Dict. d'Hist. Nat. xxxi. p. 502 (1819); Bonn. et Vieill. Enc. Méth. ii. p. 590 (1823); Less. Man. d'Orn. ii. p. 42 (1828); id. Dict. Class. d'Hist. Nat. xv. p. 511 (1829).

Nectarinia collaris, Jard. Monogr. Sun-birds, pp. 179, 251, pl. 6 (1843); Gray, Gen. B. i. p. 97 (1847); Bp. Consp. i. p. 406. no. 5 (1850); Jard. Contr. Orn. 1851, p. 153; Müll. J. f. O. 1855, p. 13. no. 136; Gurney, Ibis, 1860, p. 208; id. Ibis, 1864, p. 358; Finsch, J. f. O. 1867, p. 246; Layard, B. S. Afr. p. 77. no. 125 (1867); id. Ibis, 1869, p. 365; Gray, Hand-l. B. i. p. 108. no. 1314 (1869); Sharpc, Cat. Afr. B. p. 41. no. 381 (1871); Shelley, Ibis, 1875, p. 70. no. 35.

Anthodiæta collaris, Cab. Mus. Hein. i. p. 100 (1850); Reich. Handb. Scansoriæ, p. 293. no. 688, pl. 590. figs. 4005-6 (1854).

Nectarinia gamtocensis, Verr. Contr. Orn. 1851, p. 152.

♂ *ad.* suprâ metallicè viridis, tectricibus alarum minimis et medianis dorso concoloribus: alis brunneis, primariis olivascanti-flavo, secundariis et tectricibus alarum majoribus metallicè viridi marginatis: gutture toto et præpectore metallicè viridibus dorso concoloribus; torque infra-marginante augustâ metallicè violaccâ: corpore reliquo subtus flavo.

♀ *ad.* mari similis, sed subtus omnino flava.

♂ *juv.* fœminæ adultæ similis.

Hab. in parte orientali Africæ australis.

Adult Male. Upper parts metallic golden-green, including the least and median series of wing-coverts; greater series dark brown, with edgings of metallic green, as also the secondaries; primaries dark brown, margined with olive-yellow; tail-feathers black, slightly paler at the tips, and edged with metallic green; sides of head and neck, entire throat, and fore neck metallic green like the back, followed by a narrow collar of metallic violet across the breast, remainder of under surface yellow, faintly washed with olive on the sides of the body; pectoral tufts bright yellow; under wing-coverts white, tinted with sulphur-yellow; the lower surface of the quills brown, the inner webs margined with white; bill and legs black; irides dark brown. Total length 3·8 inches, culmen 0·5, wing 2·1, tail 1·5, tarsus 0·65.

Adult Female. Similar in plumage to the male, except that the entire under surface of the body and the throat is yellow, rather paler towards the chin. Total length 3·6 inches, culmen 0·5, wing 1·9, tail 1·5, tarsus 0·6.

Young Male. Similar in plumage to the adult female.

HAB. Natal and the adjacent parts of South-eastern Africa, as far westward as the Gamtoos river.

THE Natal Collared Sun-bird is distinguished from its West-African ally (*A. hypodila*) by the very plainly marked metallic edgings to the secondary quills, a feature not to be observed in the latter bird. Although perhaps a character of apparently small importance, it is a constant one, and obtains even in the nestling bird, so that I consider *A. collaris* to be a distinct species from *A. hypodila* and its other African congeners.

Its range is rather restricted, and it has not at present been met with away from Southern and South-eastern Africa. Levaillant first discovered the species on the Gamtoos river, where, he says, it is very abundant, being usually found in family parties. Mr. Atmore, however, who is thoroughly well acquainted with the locality mentioned, has never encountered the species at all; so that its presumed abundance may be questioned. But that it does occur there is certain; for M. Verreaux presented Mr. Sharpe with a specimen shot on the Gamtoos in August 1852, as well as one from the Buffalo river. In Mr. Sharpe's collection there is also a specimen sent by Mr. Layard from the Uitenhage district; and Mr. Rickard has procured it at East London. It has been likewise found near Graham's Town by Dr. Atherstone; and the same gentleman has shot specimens at the mouth of the Kleinmont river, about eight miles distant from the Kowie: for this last information we are indebted to Mr. Layard, who also tells us that he has received it from Mrs. Barber, from the "New-Year river."

In Natal, from my own experience, I found it tolerably abundant near Durban, usually in pairs or small parties, frequenting the low, thick bushes, busily searching for insects amongst the twigs and leaves, and not, like most other Sun-birds, only frequenting the flowering plants and trees. In fact, in their habits they much resemble our Willow-Wren (*Phylloscopus trochilus*), as they climb and hop amongst the boughs or flit round the edges of the prickly mimosæ or the tangled creepers, displaying the brilliant green of their plumage, which they retain at all seasons of the year. Even the nestlings present these metallic colours to the same extent as the adult females, as I have had the opportunity of verifying myself; while at Durban on the 28th of March a portion of one of their nests was brought in containing two young birds; the nest was constructed of fine grass, thickly lined with feathers and horsehair.

This peculiarity of the nestling being adorned with the brilliant metallic colours of the adult is, as far as we know, only met with in the present species and in the two nearest allied forms from Western and Eastern Africa. The knowledge of the plumage of the nestling shows that the metallic green edges to the quills in this species do not alter with age, and proves conclusively that the West-African *A. hypodila* is really a distinct species—and is further of assistance in enabling us to distinguish the immature birds of these species from those of *A. rectirostris* and *A. tephrolæma*, in which the back is more or less mottled with non-metallic plumes.

The present species I have rarely met with in the higher forest-trees, amongst the blossoms so much frequented by most of the members of this family. This modification in habits accords with the shortness of its bill, as its structure is more adapted for capturing insects, and less for probing into the chalice of flowers, than in most of the species belonging to the other genera of Cinnnyridæ.

These remarks, which are entirely from my own notes, are supported by Mr. Ayres's observations, also made in Natal. "These little birds," he says, "are, I think, rather more insectivorous than the other Natal species, as I have noticed that they climb about the creepers

and thick foliage a good deal, hunting under the leaves and into buds for small insects; but they take nectar from flowers in an equal degree. They build a penduline nest, generally in some thick bush, hanging it from the leaves and outermost twigs. They are very fond of building in orange-trees and others of equally dense foliage." In a later article he observes, "these birds are decidedly scarce, though found throughout Natal. Small insects appear to form their principal diet. The females seem much to outnumber the males." This preponderance of "females" may be probably accounted for by the plumage of the immature males being similar to that of the adult hen bird.



ANTHREPTES HYPODILA
ANTHREPTES ZAMBESIANA

ANTHODIÆTA HYPODILA.

(WEST-AFRICAN COLLARED SUN-BIRD.)

Nectarinia hypodilus, Jard. Contr. Orn. 1851, p. 153; Hartl. J. f. O. 1854, p. 12. no. 115; Müll. J. f. O. 1855, p. 16. no. 169; Hartl. Orn. W.Afr. p. 52. no. 149 (1857); Bocage, Jorn. Lisb. i. p. 135. no. 36 (1866); Gray, Hand-l. B. i. p. 108. no. 1317 (1869); Reichenow, J. f. O. 1875, p. 31.

Nectarinia collaris, Verr. in Jard. Contr. Orn. 1851, p. 152 (nec Vieill.).

Anthodiæta subcollaris, Reich. Handb. Scansoriæ, p. 293. no. 686, pl. 590. figs. 4007-8 (1854).

Anthodiæta hypodelos, Reich. Handb. Scansoriæ, p. 293. no. 687 (ex Jard.).

Nectarinia subcollaris, Hartl. Orn. W.Afr. p. 52. no. 150 (1857); Cass. Pr. Philad. Acad. 1859, p. 36; Heine, J. f. O. 1860, p. 137; Hartl. l. c. p. 109; Gray, Hand-l. B. i. p. 108. no. 1315 (1869); Sharpe, Ibis, 1870, p. 478; id. P. Z. S. 1871, pp. 609, 615; id. Cat. Afr. B. p. 41. no. 382; id. P. Z. S. 1873, p. 717; id. P. Z. S. 1874, p. 306; Ussher, Ibis, 1874, p. 60.

♂ *ad.* similis *A. collaris*, sed secundariis viridi, haud metallicè marginatis distinguendus.

♀ *ad.* mari similis, sed subtùs flava.

Hab. in Africâ occidentali.

Adult Male. Upper parts metallic golden green, including the least and median series of wing-coverts; greater series and the quills dark brown, with edgings of olive-yellow; a few of the greater coverts occasionally partially edged with metallic green; tail black, the feathers edged with metallic green and with slightly paler ends; sides of head and neck, entire throat and fore-neck metallic green like the back, followed by a narrow collar of metallic violet across the breast; remainder of under surface yellow, faintly washed with olive on the sides of the body; pectoral tufts bright yellow; under wing-coverts white, tinted with sulphur-yellow; the lower surface of the quills brown, the inner webs margined with white; bill and legs black; irides dark brown. Total length 3·8 inches, culmen 0·5, wing 2, tail 1·3, tarsus 0·6.

Adult Female. Similar in plumage to the male, except that the entire under surface of the body and the throat are yellow, rather paler towards the chin. Total length 3·4 inches, culmen 0·55, wing 1·95, tail 1·3, tarsus 0·6.

Young Male. Similar in plumage to the adult female.

HAB. West Africa from Senegal to Angola.

THE Collared Sun-bird, which inhabits the western side of the African continent, is met with through the entire forest-region and in the adjacent islands. The Bremen Museum contains examples from the river Gambia; and M. Jules Verreaux has received it from Casamanze, while

Lieut. Bulger shot a specimen in the island of Bulama. I met with it plentifully on the Gold Coast, as noticed below ; and every one of Governor Ussher's consignments from the same locality contained an assortment of specimens : from Lagos it has also been sent to the Stuttgard Museum. Mr. Crossley and Dr. Reichenow procured it in the Cameroons, and DuChailu in Gaboon and on the river Camma. The original types came from Fernando Po, received from Mr. Fraser. Lower down on the west coast the late Captain Sperling found the species on the Congo ; and the Lisbon Museum contains an example from Loanda, where it was forwarded by Senhor Toulson. Thus it will be seen that the species is typically West-African, ranging through the entire length of Mr. Sharpe's " Guinean subregion."

On the Gold Coast they are extremely abundant in all the wooded districts ; and frequently my companion Mr. Buckley and myself, while resting on the banks of the shady brook at Abrobongo, near Cape Coast, have watched these active little creatures, ever on the move, threading in and out through the tangled masses of creeper which hang down from the loftier trees, in their steady search for the small insects which form their principal food. At times they flit across the stream to some more sunny bough, always accompanied by their mates in almost every movement, and frequently seen in small parties of four or five, all apparently on the most friendly terms, exhibiting none of that quarrelsome disposition which is rather characteristic of Sun-birds in general, but often disturbing the bright butterflies from the blossoms in their restless search for the smaller insects, and at times dipping their long tongues into the honey of the flowers. So abundant is this bird that during our stay in West Africa we rarely passed a day without seeing it ; and when in the Aguapim mountains, as soon as our ornithological pursuits became known, the natives brought us in cages full of these Sun-birds alive, showing how abundant they are and how easily caught with birdlime ; and had we not positively refused to have any thing to do with live birds brought in by the natives, the massacre of these poor little creatures would have been frightful to contemplate.

Although so abundant in these wooded districts, we did not meet with it amongst the bushes which are scattered over the wide plains of Accra.

They never lose the metallic colours which adorn their plumage from their earliest youth ; and these bright colours are constantly visible as they flit about the edges of the bushes, rarely flying more than a few yards at a time, and, if fired at and missed, they only fly round to the other side of the bush, to recommence their search for insects, and appear to be perfectly unconscious of any danger.

ANTHODIÆTA ZAMBESIANA.

(ZAMBESI COLLARED SUN-BIRD.)

Nectarinia collaris, Kirk, Ibis, 1864, p. 320. no. 43 (nec Vieill.); Hartl. P. Z. S. 1867, p. 824;
Finsch & Hartl. Ost-Afr. p. 223. no. 102 (1870); Sharpe, P. Z. S. 1873, p. 713. no. 18.
Anthodiæta collaris, Cab. in Von der Decken's Reis. Ost-Afr. iii. p. 28. no. 21 (1869).

♂ similis *A. collaris*, sed metallicè aurato-cupreus potius quam viridescens; secundariis viridi ut in *A. hypodila* limbatis, nec colore metallico ut in *A. collaris*.

Hab. in Africa orientali.

Adult Male. Similar to *A. hypodila*, but with a bright golden copper shade, and having the edges of the inner quills glossed with golden copper, and with no metallic edges to the other quills. Total length 4 inches, culmen 0·5, wing 2·0, tail 1·5, tarsus 0·6.

Adult Female. Similar to the male, but entirely yellow underneath. Total length 3·6 inches, culmen 0·5, wing 1·95, tail 1·5, tarsus 0·6.

HAB. Eastern Africa, from Mombas as far south as the Zambesi.

THE present bird is thoroughly intermediate between the Collared Sun-birds of South and West Africa; but yet it seems to me to differ sufficiently from both to deserve a separate title. In general appearance it resembles *A. collaris*; but it has the olive-yellow edgings to the secondaries like the West-African *A. hypodila*, but glossed on the inner feathers with a deep golden shade. I have already noticed how important a character is the colour of the edgings of the secondaries in distinguishing these little birds; and in a large series of them, from every locality which they are known to inhabit, I have seen nothing like the golden copper of the Zambesi bird. The male individual in the British Museum, which I make the type of my new species, was collected by Dr. Kirk at Shupanga, in the Zambesi. I may add that Mr. G. R. Gray appears to have noticed its difference, as he has marked the specimen "*N. collaris*, var."

Dr. Kirk states that it was "found near Shupanga and Lena, but was not very common: its nest was seen suspended to grass-stalks." It has also been procured by the same gentleman at Zanzibar, as well as by Bojer. Mr. Wakefield and Baron von der Decken also met with it at Mombas.

We know nothing of its habits and economy; but it doubtless strictly resembles in this respect its very near allies *A. collaris* and *A. hypodila*.

The figures are taken from specimens in the British Museum.



APACNOTHEEA MAGNA.

ARACHNOTHERA MAGNA.

(THE LARGE INDIAN SPIDER-HUNTER.)

Cinnyris magna, Hodgs. Ind. Rev. 1837, p. 272.

Arachnothera inornata, Horsf. (nec Temm.) P. Z. S. 1839, p. 167, no. 94.

Arachnothera magna, Blyth, J. A. S. B. 1843, p. 981, 1846, p. 43; Gray, Cat. Hodgs. Mamm. & Birds Nepal, p. 60 (1846); id. Gen. B. i, p. 99, no. 4 (1847); Blyth, Cat. B. Mus. A. S. B. p. 221, no. 1341 (1849); Bp. Consp. Av. i, p. 410, no. 5 (1850); Cab. Mus. Hein. i, p. 106, no. 577 (1850); Reichb. Handb. Scansoriæ, p. 316, no. 746, pl. 593, fig. 4023 (1854); Licht. Nomencl. Av. p. 55 (1854); Horsf. & Moore, Cat. B. E. I. Co. Mus. ii, p. 727, no. 1058 (1856); Jerd. B. India, i, p. 360 (1862); Beavan, Ibis, 1865, p. 414; Bulger, Ibis, 1869, p. 159; Gray, Hand-l. B. i, p. 111, no. 1376 (1869); Godwin-Austen, J. A. S. B. xxxix. p. 98 (1870); Hume, Str. F. 1874, p. 473, 1875, p. 85; Blyth & Walden, Cat. Mamm. & Birds Burma, p. 140, no. 485 (1875); Walden, Ibis, 1876, p. 347.

Arachnothera chrysopus, Hodgs. in Gray's Zool. Misc. p. 82 (1844); id. J. A. S. B. xxiv, p. 575 (1855).

? *Arachnothera affinis*, Blanford, Ibis, 1870, p. 467.

♂ *ad.* suprâ olivascenti-flavus, plumis medialiter nigris, quasi striatis: capitis et colli lateribus pallidioribus et angustius striolatis: pileo et tectricibus alarum minimis et medianis latius medialiter nigris, olivascenti-flavo marginatis: tectricibus majoribus et remigibus saturatè brunneis extûs olivascenti-flavis, secundariis intimis omnino olivascenti-flavis: rectricibus eodem modo coloratis, ad apicem pallidioribus et subterminaliter saturatè brunneo transfasciatis: corpore subtûs fulvescente, plumis omnibus distinctè nigro medialiter lineatis: subcaudalibus magis flavicantibus, basaliter olivaceis: subalaribus albidis, marginalibus flavis medialiter triquetrim saturatè brunneis: remigibus infrâ brunneis, intûs albidis: maxillâ nigrâ, mandibulâ saturatè brunneâ: pedibus aurantiacis: iride saturatè brunneâ.

♀ *ad.* haud a mari distinguenda.

Hab. in montibus Himalayanis orientalibus et in montibus Assamicis et Burmanicis.

Adult Male. Upper parts olive-yellow with black centres to the feathers; sides of the head and sides of the neck the same, but slightly paler and the black centres to the feathers rather smaller; the crown, lesser and median series of wing-coverts are, more properly speaking, black, each feather with a clear, sharply defined, olive-yellow margin; the greater coverts and the quills have their inner webs dark brown and their outer ones olive-yellow, which latter colour pervades both webs of a few of the innermost quills; tail olive-yellow with a broad, subterminal, irregularly shaped bar of dark brown, the feathers slightly paler beyond this bar on their inner webs; underparts buff with a broad clear black streak down the centre of each feather; under tail-coverts yellower and with all the basal portions of the feathers olive; under surface of the wings brown with the inner margins of the quills and the coverts white, the marginal ones shading into sulphur-yellow and having dark-brown triangular centres; bill, upper mandible black, lower one and irides dark brown; legs orange. Total length 7 inches, culmen 1.6, wing 3.7, tail 2.2, tarsus 0.8.

Adult Female. Similar in plumage to the male.

HAB. Nepal, Sikkim, Assam, Khasia hills, Tipperah, Chittagong, Arracan, southward to Pahpoon.

THIS large dull-coloured Sun-bird is readily recognized by the broad black shaft-stripes to the feathers of the back and breast. It is closely allied to *A. aurata*, which, however, may be distinguished by the shaft-stripes being much narrower and less distinct.

Messrs. Hume and Davison write to me:—"The larger Indian Spider-hunter is extremely common in Sikkim and part of Nepal, in the hills and valleys, from an elevation of about two to five thousand feet according to the season, and descending at times in the winter even to a lower elevation, being found as a straggler in the Doars and the Terai in the cold weather.

"We are not aware that it is ever found further west than Nepal; but if it does occur at all in Kumaon it can only be as a straggler. Eastward in the western portions of Assam (always, be it understood, in hilly tracts) it appears to be common; but Assam has as yet been so imperfectly explored that we are unable to say how far eastward it extends. Southward it is found in the Khasia hills, Hill Tipperah, and the hilly portions of Chittagong and Arracan. It does not occur, so far as we yet know, in the dry northern portions of Pegu; but east of the Sittang it is met with in the northern portions of the Tenasserim Province as far south as Pahpoon. Further south than this we have never procured it.

"Colonel Tickell is said to have obtained it twice in Tenasserim; but this was probably in the hills dividing this province from Siam; and Horsfield (Cat. B. Mus. E.I. Co. p. 727) mentions a specimen from Helfer's collection; but we have collected vigorously for three years in most parts of Tenasserim and have never met with a specimen south of Pahpoon, although by a misprint in our first list (Str. F. ii. p. 473) we are made to record a specimen from Yè."

"There is little to be said of the habits of the *Arachnothera*, which are all very similar to those of other Sun-birds, frequenting large flowering trees, like the silk-cotton-tree (*Bombax*, several species), and feeding chiefly on nectar, though unquestionably also consuming insects, the remains of which are continually found in their stomachs.

"If the trivial name Spider-hunter is meant to indicate that they are chiefly insectivorous, we doubt its correctness, as we believe that their chief staple of food is nectar.

"They have a feeble chirruping note, uttered generally while the bird is feeding, but occasionally also as they fly from tree to tree.

"Their flight is swift and direct, with rapid beats of the wings; but they seldom, if ever, appear to sustain it for any great distance.

"They breed in May, at any rate in Sikkim, and build an excessively massive, deep, cup-shaped nest, composed of vegetable fibre densely felted together, externally intermingled with portions of fine skeleton leaves, and internally lined with soft grass.

"On this subject our friend Mr. Gammie writes:—"Common as this species is in the Chinchona Preserves, I have as yet taken but two of its nests. As they were precisely alike, both in structure and position, and as, moreover, I learn on good authority that the nests are always similar to those I took, I can only conclude that Jerdon had neither seen one *in situ* nor even a perfect specimen, or he never would have described it as "a very large but loose structure of grass and other fibrous materials, with a hole at one side near the top." In the first place, the

nests measure externally only 4 inches in height by the same in diameter at the top, and consequently are not very large for the size of the bird. In the next place, the fibrous materials, fine grass stems and skeleton leaves, of which they are composed, are compactly and neatly interwoven; and the nests are cup-shaped with an open top, instead of having the hole at one side.

“‘The nest is so neat and so beautifully situated that the greatest admirer of Jerdon could not help reproaching him for so sadly traducing this most accomplished architect.

“‘The nest is suspended from about the middle of the under surface of a large plantain-leaf by numerous threads (two hundred or so) of plantain-stem fibre, attached to rather more than half the rim of the cup, put through the blade of the leaf and knotted on the upper side.

“‘The holes are as neat, without a crack from them, as if they had been bored with a sharp needle; and as they are but barely large enough for the insertion of the threads, not a trace of water can get through to the nest. It was a pouring wet day when I found my first nest; and it seemed so dry and comfortable that I could not help wishing that I was half as well sheltered myself.

“‘The cavity is lined with fine grass-stems, and measures about 2·5 inches in diameter by the same in depth.

“‘The full number of eggs appears to be three. Both my nests were found in May, at an elevation of about 3000 feet; but as the bird is very common up to at least 5000 feet, I have no doubt it breeds up to that elevation.’

“The eggs obtained by Mr. Gammie correspond precisely with others previously sent us by Mr. Mandelli, but which, as they rested on native authority, I had not accepted.

“The eggs are distinctly of the *Arachnechthra* type, but much darker, and of course much larger. They are moderately elongated ovals, considerably pointed and compressed towards the small end, have a fine compact shell, and a very fair amount of gloss. The ground is a drab or sepia-brown with occasionally a decided purplish tinge; and they are minutely stippled and speckled all over, but most densely so about the large end, with a deep purple which is almost black.

“In length they vary from 0·85 to 0·91 inch, and in breadth from 0·62 to 0·63.

“The following are dimensions and colours of the soft parts taken from specimens in the flesh:—

“*Male*. Length 7·8 to 7·9 inches, expanse 11·25 to 11·62, tail from vent 2·12 to 2·25, wing 3·55 to 3·75, tarsus 0·8, bill from gape 1·75 to 1·8, weight 1·2 to 1·25 ounce.

“*Female*. Length 6·82, expanse 10·5, tail from vent 1·75, wing 3·25, tarsus 0·75, bill from gape 1·6, weight 0·8 ounce.

“The legs, feet, and claws vary from bright to dull orange; bill horny black, reddish at the edge towards the base of the lower mandible; irides dark brown.”

Messrs. Hume and Davison’s very exhaustive notes, which I have here given in full, leave no additional information to be extracted from other authors.

I quite agree with Mr. Gammie that Dr. Jerdon probably never saw the nest, but, in my opinion, must have mistaken the nest of some other bird as belonging to this species.

Near Darjeeling, according to Captain Bulger, it is not uncommon in the warm valleys below the station.

Mr. Oates, our best authority upon the birds of Pegu, writes to me that *A. aurata* and *A. longirostra* are the only *Arachnotheræ* he has met with in that province.

With regard to the *A. magna* mentioned by Captain Beavan as collected at Kyodan on the 14th of August 1865, the Marquis of Tweeddale writes to me:—"I have examined Beavan's specimen of *Arachnothera* from Kyodan, and find it belongs to *A. aurata*." The specimens said to have been collected by Colonel Tickell in Tenasserim, as well as the bird referred to this species by Dr. Horsfield from Helfer's collection, most probably also belonged to *A. aurata*, unless, as Messrs. Hume and Davison suggest, the localities given for these specimens are not strictly correct.

The upper figure in the illustration represents a specimen in my collection from Darjeeling ; and from this bird I have also taken my description.

ARACHNOTHERA AURATA.

(BLYTH'S SPIDER-HUNTER.)

Arachnothera aurata, Blyth, J. A. S. B. xxiv, p. 478 (1855); id. Ibis, 1870, p. 164; Elwes, P. Z. S. 1873, p. 661; Hume, Str. F. 1875, pp. 15, 85; Blyth & Walden, Cat. Mamm. & Birds of Burma, p. 140, no. 486 (1875).

Arachnothera magna, Walden (nec Hodgk.), P. Z. S. 1866, p. 540; Beavan, Ibis, 1869, p. 418.

♂ *ad.* similis *A. magnæ*, sed suprâ magis flavicans et plumis minùs distinctè nigro medialiter striatis, dorso postico et uropygio haud striatis, et supracaudalibus minùs distinctè nigro lineatis, corpore subtùs conspicuè angustius lineato diversus.

♀ *ad.* haud a mâre distinguenda.

Hab. in regione Burmanicâ.

Adult Male. Very similar to *A. magna*, from which it differs in the upper parts being slightly yellower, in the black markings on the mantle and scapulars being less distinct and confined to narrow shaft-stripes, the lower back without stripes, and the upper tail-coverts with smaller and less distinct dark centres; on the underparts the black shaft-stripes are much narrower. Total length 6·2 inches, culmen 1·5, wing 3·4, tail 1·8, tarsus 0·75.

Adult Female. Similar in plumage to the male.

HAB. Burmah, Upper Pegu, and North Tenasserim.

BLYTH'S Spider-hunter, like the last species, may be distinguished from the other members of this genus by the black stripes down the shafts of the feathers. It differs from *A. magna* by having these shaft-stripes much narrower, both above and beneath, while they are almost obsolete on the lower back.

It inhabits Native Burmah, Upper Pegu, and the extreme north of the Tenasserim province; but its range is not yet very perfectly known, at least as to its northern and eastern limits.

Through the kindness of the Marquis of Tweeddale I have been able to examine the specimens collected by Lieutenant Wardlaw Ramsay in the Tonghoo and Karen-nee hills, as well as the specimen obtained by Captain Beavan at Kyodan, on the Salween river. This latter individual was shot while in the act of feeding (probably on insects) in the inside of the large flower of a plantain. The irides were dark brown, the bill black, and the legs bright orange-yellow.

Messrs. Hume and Davison write to me:—"Blyth's Spider-hunter is common in the dry portions of Upper Pegu, in the plains, but more so in the hills up to 3000 feet. It has been met with in the extreme northern portion of Tenasserim, at Tonghoo and the Karen-nee hills.

It also occurs further north in Native Burmah; but how far north it extends we are as yet ignorant."

According to Mr. Oates's remarks (Str. F. iii. p. 85), which I quote herewith, it is "very common on the Pegu hills, and not uncommon in the plains; I lately saw a specimen on the banks of the Irrawaddy, near Thayetmyo. It is not met with in large quantities till the ever-green forests are reached; it has a curious habit of stretching out its neck, when perching, to such an extent as to appear about to overbalance itself. A male that I shot measured—length 7·1 inches, wing 3·25, bill from gape 1·6; a female measured—length 6·45, expanse 9·5, tail from vent 1·7, wing 2·95, bill from gape 1·48, tarsus 0·8, bill black, margin of lower mandible yellow, inside of mouth and claws yellow, iris brown, eyelids plumbeous, legs and feet waxy orange."

Mr. Hume writes to me:—"Consider the first paragraph of page 86 (Str. F. iii.) cancelled, except:—'in both *magna* and apparently *aurita* the females are considerably smaller than the males.'

"It is true that the male *A. aurita* is almost of the same dimensions as the female *A. magna*, and also that the striations on the back of the female *A. magna* are somewhat less marked than in the male; but the male *A. aurita* with its excessively fine striæ of the lower surface and its almost unstriated back can never be mistaken for the female of *A. magna*."

The lower figure in the illustration represents this species.

The specimens figured and described were shot by Lieutenant Wardlaw Ramsay, and are in the Marquis of Tweeddale's collection.



ARACHNOTHERA MODESTA.

(GREY-BREASTED SPIDER-HUNTER.)

Anthreptes modesta, Eyton, P. Z. S. 1839, p. 105.

Arachnothera modesta, Blyth, J. A. S. B. xii, p. 981 (1843), xv, p. 43 (1846); id. Cat. B. Mus. A. S. B. p. 222, no. 1345 (1849); Bp. Consp. Av. i, p. 410, no. 6 (1850); Horsf. & Moore, Cat. B. E.I. Co. Mus. ii, p. 730, no. 1063 (1856); Moore, P. Z. S. 1859, p. 460; Gray, Hand-l. B. i, p. 111, no. 1379 (1869); Stoliczka, J. A. S. B. xxxix, p. 302, no. 40 (1870); Salvad. Ann. Mus. Civic. Genova, v, p. 183 (1874); Hume, Str. F. 1874, p. 473, 1875, p. 85; Blyth & Walden, Mamm. & Birds of Burma, p. 140, no. 488 (1875).

Arachnothera latirostris, Blyth, J. A. S. B. xii, p. 982 (1843), xiv, p. 557 (1845); Gray, Gen. B. i, p. 99, no. 6 (1847).

Arachnothera affinis, Pelz. Reise Novara, i, p. 53 (1865).

♂ *ad.* suprâ flavicanti-olivaceus, pilei plumis obscurè medialiter brunneis: tectricibus alarum minimis et medianis dorso concoloribus: majoribus remigibusque saturatè brunneis, extûs latè flavicanti-olivaceis, secundariis intimis dorso concoloribus: rectricibus nigricantibus ad apicem pogonii interni albedo maculatis, duabus centralibus olivascenti-flavis, nigricanti terminatis, omnibus olivascenti-flavo extûs marginatis: maculâ anteculari genisque fuscescanti-cinereis: subtûs pallidè cineraceus vix olivaceo lavatus: gutture imo et præpectore obscurè brunneo striolatis: subcaudalibus olivascenti-brunneis flavido terminatis: subalaribus brunnescenti-albidis, extimis flavis basaliter brunneis: rostro saturatè brunneo: pedibus pallidè carneis: iride pallidè brunneâ.

♀ *haud a mare distinguenda.*

Hab. in peninsulâ Malayanâ et in insulâ "Borneo" dictâ.

Adult Male. Upper parts yellowish olive; the centres of the feathers of the forehead and crown more dusky, with black shaft-stripes; wings of the same colour as the back, with the inner webs of the greater coverts and quills brownish black; tail yellowish olive, with a broad terminal band and the inner webs of all but the two centre feathers black, and having a clear white subterminal spot on the inner webs of the four outer feathers on each side; sides of the head yellowish olive, shaded with ashy grey in front of the eyes and on the lower portion of the cheeks and ear-coverts; underparts pale olive-shaded ash, the feathers on the lower half of the throat with rather indistinct dusky brown shaft-stripes; under tail-coverts dusky olive, broadly edged with pale buff; under surface of the wings dark brown, with the inner margins of the quills and the coverts white, the latter towards the edge of the wing shading into sulphur-yellow, and having brownish-black centres; upper mandible black, lower one reddish horn-colour; iris brown; legs vary from reddish ochre to pale reddish brown. Total length 6.5 inches, culmen 1.4, wing 3.3, tail 2.1, tarsus 0.7.

Adult Female. Similar in plumage to the adult male. Total length 6 inches, culmen 1.25, wing 2.9, tail 1.8, tarsus 0.7.

HAB. Malay peninsula and Borneo.

Arachnothera modesta and *A. affinis* may be distinguished from the other species of this genus

by the ashy-brown colouring of the underparts. From *A. affinis* the present species is separated on account of its smaller size, and its having the shaft-stripes on the throat and front of the breast less distinctly marked. There are also some other slight differences, as, for instance, the slightly greener shade in the plumage of *A. modesta*, and the paler colour of the under mandible.

These differences are sufficient for a practised eye at once to separate the Java birds from others from the Malay peninsula and Borneo; yet they are really so slight that it is not without some hesitation that I retain the birds as specifically distinct, rather than as being mere local varieties of one species.

An immature specimen collected by Lieutenant Wardlaw Ramsay at Malacca agrees perfectly with the adult above described, excepting that the shaft-stripes are entirely absent.

According to the notes kindly placed at my disposal by Messrs. Hume and Davison, "the Grey-breasted Spider-hunter is rare in Tenasserim, and only occurs, as far as we know, in the southern portion. The most northerly point where we have as yet met with it is Meeta Myo, in the Tavoy district; but in the Malay peninsula it is much more abundant; in fact, throughout the whole country about Malacca and, again, about Jahore it is perhaps the commonest species of the genus.

"Like the other species of *Arachnothera* the present one most especially affects plantain-gardens and cocoanut-trees, and, so far as voice and flight are concerned, offers nothing to remark as distinguishing it from the other nearly allied species.

"Usually the males are notably larger than the females.

"*Males.* Length 7 inches, expanse 10·25, tail from vent 2 to 2·12, wing 3·25 to 3·37, bill from gape 1·45 to 1·55: weight 0·75 to 1 ounce.

"*Females.* Length 6·25 to 6·75 inches, expanse 9 to 9·5, tail from vent 1·62 to 1·85, wing 2·8 to 2·9, tarsus 0·62 to 0·7, bill from gape 1·35 to 1·4: weight 0·55 to 0·6 ounce.

"The irides are brown; the legs vary from reddish ochre to pale reddish brown; the upper mandible is black, the lower one reddish horn-colour.

"We know nothing as yet of the nidification."

In Borneo it would appear to be a rather rare species; for the only specimens from that island I have been able to examine are the specimen here figured and one collected on the banks of the river Lawas, in North-western Borneo, and most kindly presented to me by Governor Ussher. These specimens are perfectly identical in every respect with those from the Malay peninsula.

Count Salvadori, in his admirable work upon the birds of Borneo, published in 1874 (Ann. Mus. Civic. Genova, vol. v), also records it from the neighbourhood of Sarawak upon the authority of Doria and Beccari, who found it hunting for small spiders amongst the foliage, and observed in the mouth of one individual three spiders still alive. According to their notes the habits perfectly resembled those of the other species of this genus.

The specimens above described were collected by Mr. Davison in the Malay peninsula, and are in Mr. Hume's collection; while the bird represented in the upper figure of the accompanying illustration is a male obtained by Mr. Everett at Simunjon, in North-western Borneo, and now in my collection: according to the label it had the "irides light brown, and the legs transparent flesh-colour."

ARACHNOTHERA AFFINIS.

(JAVAN GREY-BREASTED SPIDER-HUNTER.)

Cinnyris affinis, Horsf. Trans. Linn. Soc. xiii, p. 166 (1820); Vig. Mem. Raffles, p. 672

Nectarinia inornata, Temm. Pl. Col. 84, fig. 2 (1823).

Cinnyris inornatus, Less. Man. d'Orn. ii, p. 33 (1828).

Arachnothera inornata, Less. Traité d'Orn. p. 292 (1831); Blyth, J. A. S. B. xv, p. 43 (1846); S. Müll. & Schl. Verh. Nat. Gesch. Aves, p. 68, no. 3 (1846); Blyth, Cat. B. Mus. A. S. B. pp. 222, 327 (1849); Bp. Consp. Av. i, p. 409 (1850); Reichb. Handb. Scansoriæ, p. 316, no. 745, pl. 593, figs. 4021-22 (1854); Schl. Handl. Dierk. p. 237 (1857).

Arachnothera affinis, Gray, Gen. B. i, p. 99, no. 2 (1847); Blyth, Cat. B. Mus. A. S. B. pp. 222, 327 (1849); Cab. Mus. Hein. i, p. 106, no. 573 (1850); Reichb. Handb. Scansoriæ, p. 315, no. 744, pl. 594, figs. 4026-27 (1854); Horsf. & Moore, Cat. B. E.I. Co. Mus. ii, p. 729, no. 1062 (1856); Gray, Handl. B. i, p. 111, no. 1375 (1869).

? *Arachnothera liturata*, Licht. Nomencl. Av. p. 55 (1854).

Similis *A. modestæ* sed major, suprâ magis aurato lavatus, subtùs magis distinctè striatus : mandibulâ saturatè brunneâ distinguendus.

Hab. in insulis "Java" et "Sumatra" dictis.

Adult Male. Upper parts olive-shaded yellow with dusky black centres to the feathers of the forehead and crown; wings the same colour as the back, with the inner webs of the quills dark brown; tail olive-shaded yellow, with a broad terminal band and the inner webs of all but the two centre feathers dark brown, and with a clear white subterminal spot on the inner webs of the four outer feathers on each side; sides of the head olive-yellow, shading into ashy grey in front of the eyes and on the lower portion of the cheeks and ear-coverts; underparts pale brownish ash slightly tinted with olive; the feathers on the throat with wide dark central streaks, and some of the chest-feathers with similar marks, but more olive and less clearly defined; under tail-coverts dusky olive broadly edged with pale buff; under surface of the wings dark brown, with the inner margins to the quills and the coverts white, the latter towards the edge of the wing shade into sulphur-yellow and having brownish black centres; upper mandible black, lower one dark brown; irides and legs brown. Total length 7·4 inches, culmen 1·3, wing 3·5, tail 2·1, tarsus 0·8.

Adult Female. Similar in plumage to the adult male. Total length 6·8 inches, culmen 1·3, wing 3·15, tail 2·1, tarsus 0·75.

HAB. Java and Sumatra.

THE present species, as I have already observed in my article upon *A. modesta*, is very similar in plumage to that bird; but it is of larger size, has the upper parts of a more golden shade, and

the shaft-stripes on the feathers of the throat and front of the chest darker and more sharply defined.

It is a common species in Java, where, according to Dr. Horsfield, it is known to the natives as "Chess." Mr. Wallace also collected many specimens there, two of which I have described above as adult male and female, their sexes, in my opinion, being indicated by their size. The male is in the Marquis of Tweeddale's collection, and is represented by the lower figure in my Illustration; the female is in my own collection.

From Sumatra it has been recorded by Müller and Schlegel; but I presume it is rare there; for it does not occur in the large collection made by Mr. E. C. Buxton in the neighbourhood of Lampong, nor have I been able to examine a specimen from that island.



ARACNOTHERA LONGIROSTRA

ARACHNOTHERA LONGIROSTRA.

(LITTLE SPIDER-HUNTER.)

Long-billed Creeper, Lath. Gen. Syn. Suppl. i. p. 133. no. 60 (1787); id. Gen. Hist. iv. p. 251. no. 45 (1822).

Certhia longirostra, Lath. Ind. Orn. i. p. 299. no. 65 (1790); Shaw, Gen. Zool. viii. p. 270 (1811); Bechst. Kurze Uebers. p. 190 (1812).

Soui-manga à long bec, Audeb. et Vieill. Ois. Dor. ii. p. 65 (1802); Less. Man. d'Orn. ii. pp. 32, 56 (1828); Griff. edit. Cuvier, Règne Anim. vii. p. 292. no. 1 (1831).

Cinnyris cinereicollis, Vieill. N. Dict. d'Hist. Nat. xxxi. p. 502 (1819); Bonn. et Vieill. Enc. Méth. ii. p. 591 (1823).

Cinnyris longirostris, Vieill. N. Dict. d'Hist. Nat. xxxi. p. 504 (1819); Horsf. Trans. Linn. Soc. xiii. p. 167 (1820); Bonn. et Vieill. Enc. Méth. ii. p. 591 (1823); Jerd. Madras Journ. xiii. p. 172 (1845).

Nectarinia longirostra, Temm. Pl. Col. 84. fig. 1, livr. 14 (1823).

Arachnothera longirostra, Lesson, Traité d'Orn. p. 292 (1831); S. Müll. Nat. Gesch. Land- en Volkenk. p. 405 (1843); Müll. & Schl. op. cit. Zool. Aves, pp. 69, 71 (1846); Low, Sarawak, p. 410 (1848); Blyth, Cat. B. Mus. A. S. B. pp. 222, 347. no. 1347 (1849); Bp. Consp. Av. i. p. 409. no. 2 (1850); Bernst. J. f. O. 1859, p. 280; Gray, Hand-l. B. i. p. 111. no. 1365 (1869); Salvad. Ann. Mus. Civic. Genova, v. p. 186 (1874); Tweeddale, Ibis, 1877, p. 300; Brügg. Abhandl. nat. Ver. Bremen, v. p. 458. no. 48 (1877).

Arachnothera inornata, Blyth (nec Temm.), J. A. S. B. xii. p. 982 (1843).

Arachnothera longirostris, Blyth, J. A. S. B. xii. p. 982 (1843); Gray, Gen. B. i. p. 99. no. 1 (1847); Selater, P. Z. S. 1863, p. 220; Pelz. Reis. Nov. Vög. pp. 52, 161 (1865).

Arachnothera affinis, Blyth (nec Horsf.), J. A. S. B. xv. p. 43 (1846); id. Cat. B. Mus. A. S. B. p. 222. no. 1348 (1849); Blanf. Ibis, 1870, p. 467.

Arachnothera pusilla, Blyth, Cat. B. Mus. A. S. B. App. p. 323 (1849); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 730. no. 1064 (1856); Jerd. B. Ind. i. p. 361 (1862); Blyth, Ibis, 1866, p. 364; Beavan, Ibis, 1867, pp. 322, 334; Gray, Hand-l. B. i. p. 111. no. 1378 (1869); Ball, Str. F. 1873, p. 64; Hume, Str. F. 1874, p. 473, 1875, p. 85; Blyth, Cat. Mamm. & Birds, Burma, p. 140 (1875).

Arachnocestra longirostris, Reichb. Handb. Scansoriæ, p. 315. no. 743, pl. 592. figs. 4018. 4019 (1854).

Arachnothera — ? , Walden, Trans. Zool. Soc. viii. p. 70 (1874).

♂ *ad.* suprâ olivaceus, pileo saturatè brunneo, plumis olivaceo marginatis: alâ saturatè brunneâ, rectricibus alarum minimis et medianis olivaceis, majoribus et remigibus olivaceo-flavo marginatis: rectricibus nigris olivaceo marginatis, albo terminatis, lateralibus latiùs apicatis: regione anteorulari et supercilio indistincto albidis: loris et regione parotica saturatè cinerascènti-brunneis: mento gulâque albis: pectore et subcaudalibus lætè flavis: fasciis pectoralibus flavis.

♀ *ad.* mari similis, sed fasciis pectoralibus nullis distinguenda.

Hab. in peninsulâ Indicâ, in regione Arracanensi usque ad peninsulam Malaccensem, in insulis Andamanicis, in insulis Sondaicis, et in insulâ Celebensî.

Adult Male. Upper parts olive, of a more yellow shade on the back and scapulars; crown dark brown with olive edges to the feathers; wings dark brown, the least and median series of coverts olive or broadly edged with that colour; greater series of coverts and the quills with broad olive-yellow margins to their outer webs; tail brownish black, the feathers margined with olive and with white ends, broadest towards the outer feathers; sides of the head ashy brown with a space in front and beneath the eye and a very slight eyebrow white; a dark loreal band; chin and throat white; breast, abdomen, and under tail-coverts bright yellow; pectoral tufts deep chrome-yellow; under surface of the wings brown, with the inner margins of the quills and the coverts white; the upper mandible black; the lower mandible, as well as the legs and feet, leaden grey; irides dark brown. Total length 5·75 inches, culmen 1·65, wing 2·8, tail 1·9, tarsus 0·7.

Adult Female. Similar in plumage to the male, excepting that it does not possess the deep-yellow pectoral tufts. Total length 5·5 inches, culmen 1·4, wing 2·55, tail 1·65, tarsus 0·65.

Obs. Owing to the comparatively few specimens I have seen with the deep-yellow pectoral tufts, it would appear that the latter are only assumed by the adult males during the breeding-season.

HAB. Malabar coast and the Neilgherries; Bengal, Tipperah, Chittagong, and Arracan hills; Tenasscrim and southern portion of the Malay peninsula; the Andaman Islands and the islands of Sumatra, Java, Borneo, and Celebes.

THE division of the Sun-birds to which I apply Jerdon's name of "Spider-hunters" may be conveniently divided into two genera, to be distinguished by the form of the culmen, viz. *Arachnothera*, with the culmen compressed into a somewhat sharp keel, and *Arachnoraphis*, with the culmen flattened or rounded.

These two genera are distinguished from all the other groups of Sun-birds by their more robust structure, by their larger and more roughly formed bills, and by their stronger and shorter tarsi. Besides these characters, they never possess the brilliant metallic colours usually present in adult males of the other Sunbirds.

I retain the Spider-hunters in the present family on account of their having the tongue bifurcate and the nostrils placed in short oval depressions of the bill: they indicate, however, the close affinities which exist between the Sun-birds and the brush-tongued Honey-suckers.

In the case of the Spider-hunters we cannot depend upon the dimensions for specific characters, as the measurements are extremely variable in individuals of the same species; and in some instances it would appear that the bill does not cease to grow after the bird has attained its full plumage. The olive shades of colouring also appear to be liable to slight variations, either depending upon age or the amount of exposure the parts have been subjected to.

The Little Spider-hunter is a very well-known species; and with a numerous series before me I find a regular gradation from a larger to a smaller form, the latter of which has been separated by Mr. Blyth as *A. pusilla*; but it is certainly not a distinct species, nor even a local race; for I have before me the two forms, both from the Malay peninsula and from Borneo.

It is distinguished from the other members of this group by its having the throat white and

the entire breast bright yellow. It is closely allied to *A. dilutior* from the Philippines, which differs, however, in having the centre of the breast white and the sides of the breast of a much paler yellow.

Of its occurrence in India Dr. Jerdon writes:—"I have found it several times in the forests of the Malabar coast, the Wynaad, and in parts of Mysore bordering the Neilgherries. It is, however, rare, and it has not been noticed elsewhere in India; but it is common in the countries to the east of the Bay of Bengal."

Messrs. Hume and Davison write to me:—"In the southern portion of the Indian peninsula, we have it from Kotagherry and other localities in the Neilgherries, the Wynaad and the Malabar coast; and although not so abundant as in Tenasserim, it is not really rare; four or five may be seen in a morning about the *Euphorbia* hedges of the Coonoor Ghats.

"It is common in Hill Tipperah and the Cachar hills, Chittagong and the Arracan hills, but it does not seem to extend northward into Assam, the Doars, or Sikkim. It does not occur, so far as we yet know, in the dry portions of Upper Pegu; but throughout the whole Tenasserim Province, from Tonghoo to the river Pakchan, we have specimens from almost every locality.

"It is the most widely distributed Spider-hunter in Tenasserim, but is nowhere numerically very abundant. We always found it most numerous in the plantain-gardens, where it may be seen generally upside-down, clinging to the purple bract leaves of the young plantain bunches, its head turned up inside the bract, and thus hidden from sight, busily engaged sucking the nectar from the inflorescence concealed beneath the purple sheath. It is also not uncommon in cocoa-nut plantations, and in the undergrowth, as well as on the outskirts, of scrub jungle.

"Southward in the Malay peninsula we have obtained it at Singapore and at Neealys (thirty miles north-east of Malacca), and saw it at Jahore and other places; but it is not nearly so abundant in the peninsula as in Tenasserim, and is, to a great extent, replaced by *A. modesta* and *A. flavigastra*.

"Specimens from all these localities are identical. As yet we have failed to obtain a nest. In this as in all the other species of *Arachnothera* with which we are acquainted, the male is the largest. The following are the measurements taken in the flesh of a very considerable number of specimens:—

"*Male*. Length 6.12 to 6.5 inches, expanse 7.8 to 8.62, tail from vent 1.62 to 1.9, wing 2.5 to 2.7, tarsus 0.62 to 0.7, bill from gape 1.38 to 1.62, weight 0.45 to 0.55 ounce.

"*Female*. Length 5.62 to 5.75 inches, expanse 7.5 to 7.75, tail from vent 1.62 to 1.75, wing 2.2 to 2.5, tarsus 0.55 to 0.6, bill from gape 1.2 to 1.46, weight 0.4 to 0.5 ounce.

"The iris is always deep brown; but there is a great variation in the colour of the soft parts, certainly not dependent on age, as we have obtained both old and young birds exhibiting both types of coloration. Probably it is seasonal, as birds killed in December and January exhibit both types, those killed in June, August, and September exhibit only the first type; but then we have only three birds killed in June, one in August, and one in September.

"*1st type*. Legs and feet dark plumbeous-blue; upper mandible black; lower mandible pale plumbeous-blue.

"*2nd type*. Legs, feet, and claws pale yellowish flesh-colour; upper mandible horny brown; lower mandible, except towards the tip and gape, yellowish flesh-colour.

“Specimens exhibiting intermediate colouring are often procured. A bird killed on the 17th December had the legs and feet pale plumbeous, mottled with dull yellow; another, killed two days later, had the legs pale lavender and the feet dull yellow; another, killed about the same time, had the entire legs and feet pale lavender,—the colours of the bills being similarly intermixed.”

Mr. Oates writes to me:—“I have procured *A. longirostra* and seen a few other specimens in Lower Pegu, but look upon the bird as uncommon.”

In the Andaman Islands it has been seen, according to Messrs. Tytler and Beavan (Ibis, 1867, p. 322); but we are not aware of any specimen having been captured there.

In Sumatra it was procured by Sir S. Raffles; and the Marquis of Tweeddale has again recently received it from that island. In Java, according to Dr. Horsfield, it is known to the natives as “Prit Andun;” and he observes that on comparing specimens from that island with *A. pusilla*, Blyth, he found them to be larger and brighter. Java specimens in the Marquis of Tweeddale’s and in Mr. Swinhoe’s collections are of large size, but are not brighter than specimens which I have examined from Malacca and Borneo.

In the latter island, where the species appears to be very abundant, the two races are to be met with, the smaller of which, however, appears to be by far the commonest. In the south of the island it has been collected at Banjermassing by Schierbrand, at Sarawak by Low, Doria, and Beccari; and from the north-west coast, opposite Labuan, Mr. Low has sent home an abundant supply of specimens, all belonging to the smaller race.

I have been unable to examine a specimen from Celebes, but believe that there is little doubt that the one species of Spider-hunter found in that island should be referred to the present species.

A description of the nest and eggs of this bird is given by Bernstein (J. f. O. 1859, p. 280), from which I make the following extract:—“The nest is of an oval form, about six or seven inches long by three or four wide, and is attached to the under surface of a large leaf, which thus forms the back wall of the nest. It is attached to the leaf by wool and fibres in the same manner as the nests of *Prinia familiaris*, Horsf., and *Orthotomus sepium*, Horsf. The inside is lined with soft leaves and fibres and a few fine blades of grass, while the outer portion is of the same, but rather rougher, materials, consisting principally of skeleton leaves. The two eggs contained in the nest measured 0·7 by 0·5 inch; they were white, with a narrow zone of closely situated reddish brown spots and streaks towards the blunt end.”

The accompanying illustration represents the two races: the larger one is taken from a Java specimen in Mr. Swinhoe’s collection, the smaller from a specimen collected by Mr. Low in North-western Borneo. They are the most extreme forms I have met with; and, from the absence of pectoral tufts, both appear to be females. They measure respectively 6·2 and 4·8 inches in length, culmen 1·7 and 1·4, wing 2·65 and 2·4, tail 1·9 and 1·7, tarsus 0·7 and 0·65.

Two intermediate forms I have described above—the adult male being from Malacca and the adult female from the Malabar coast, both of them being in the Marquis of Tweeddale’s cabinet.

In this latter collection I have also examined specimens from the North Cachar hills and Dabroo, as well as Lieut. Wardlaw Ramsay’s specimens from the Tonghoo hills.



ARACHNOTHERA FLAMMIFERA.

(ORANGE-TUFTED SPIDER-HUNTER.)

Arachnothera flammifera, Tweeddale, P. Z. S. 1878, p. 343.

♂ *ad.* suprâ olivascenti-flavus, frontis et verticis plumis medialiter brunneo notatis: tectricibus alarum minimis et medianis dorso concoloribus: majoribus et remigibus saturatè brunneis extûs olivascenti-flavo marginatis, secundariis latiùs: rectricibus nigricanti-brunneis dorsi colore extûs lavatis, exterioribus intûs ad apicem albo maculatis: capite laterali cinerascente: gutture et præpectore pallidè cineraceis: pectore medio albido: corporis lateribus, abdomine et subcaudalibus lætè flavis: fasciis pectoralibus aurantiaco-rubris: tibiis albidis flavo lavatis: subalaribus albis, vix flavido lavatis: remigibus infrâ brunneis, intûs albido limbatis: rostro nigro: pedibus saturatè plumbeis: iride rubrà.

HAB. in insulâ Philippinensi "Leyte" dictâ.

Adult Male. Upper parts olive-yellow, with dark brown centres to the feathers of the forehead and crown; wings dark brown, the least and median series of coverts olive-yellow, and the remainder of the feathers edged with that colour; tail brownish black, the feathers edged with olive-yellow, and with pale ends, broadest on the outer feathers, and fading into large white spots on the inner webs; sides of the head ashy grey; chin and throat hoary ash-colour, gradually fading into whitish down the centre of the breast; sides of the body, abdomen, and under tail-coverts rich yellow; pectoral tufts bright orange; thighs whitish washed with yellow; under surface of the wings dark brown, with the coverts and the inner margins of the wings white, the former slightly tinted with yellow; bill black, with a portion of the lower mandible towards the base grey; irides salmon-red; legs dark leaden grey. Total length 5 inches, culmen 1·15, wing 2·4, tail 1·75, tarsus 0·6.

HAB. Island of Leyte, in the Philippine archipelago.

THE Orange-tufted Spider-hunter is nearly allied in form and colouring to the common *A. longirostra* and to *A. dilutior* from Palawan. It is a smaller bird than either; and in the type specimen, an adult male, the deep orange-colour of the pectoral tufts is a well-marked specific character. It is somewhat intermediate in colouring between the two above-named species: thus the ashy colouring of the throat and the white centre to the chest agree best with *A. dilutior*, while the bright yellow flanks, abdomen, and under tail-coverts at once distinguish it from that bird and ally it more nearly to *A. longirostra*.

In the type specimen before me the sides of the head have been damaged. It was collected in the southern portion of the island of Leyte by Mr. Everett, in September 1877; and the colouring of the irides and legs has been taken from his label.

I am indebted to the Marquis of Tweeddale for allowing me to describe and figure the unique specimen of this well-marked species.



ARACHNOTHERA DILUTOR.

(PHILIPPINE SPIDER-HUNTER.)

Arachnothera dilutor, Sharpe, Nature, 3rd August, 1876, p. 297.

♂ *ad.* suprâ olivascenti-flavus, pileo et nuchâ brunnescentibus: alis caudâque brunneis, tectricibus alarum minimis et medianis cinerascanti-olivaceo lavatis, majoribus olivaceo vix limbatis, remigibus rectricibusque lætè flavo marginatis: rectricibus externis albo terminatis: capite laterali cinerascanti-brunneo, strigâ mystacali saturatè brunneâ: subtùs albescens, gutture pallidè brunneo lavato, et corporis lateribus olivascente lavatis: fasciis pectoralibus lætè flavis: alis infrâ brunneis, subalaribus et pogonio remigum interno albis: rostro nigro, culmine et mandibulâ pallidis.

Hab. in insulâ philippinensi "Palawan" dictâ.

Adult Male. Upper parts olive-yellow, shading into brown on the back of the neck and upper part of the head; wings and tail brown; the least and median series of wing-coverts washed with ashy olive, the greater coverts with ill-defined olive edges; the quills and tail-feathers edged with bright olive-yellow, the latter with white ends, broadest on the outer feathers; sides of the head ashy brown, with a dark brown moustachial streak; underparts white, faintly shaded with ashy brown on the throat, and with pale olive-yellow on the sides of the body; pectoral tufts bright chrome-yellow; under surface of the wings brown, with the coverts and inner margins of the quills white; bill black, fading almost into white on the keel and base of the mandible; eyelids yellow; iris dark brown; legs leaden grey. Total length 5·7 inches, culmen 1·5, wing 2·7, tail 1·9, tarsus 0·75.

HAB. Island of Palawan, in the Philippine archipelago.

THIS is the first species of *Arachnothera* that has been discovered in the Philippine Islands; it is most nearly allied to *A. longirostra*, from which it differs in having the breast white, only slightly shaded with pale olive-yellow on the sides of the body, and in the crown being brown with no olive shade.

The illustration and description of this bird are taken from the only specimen known, a male, collected by Dr. Steere in the island of Palawan, in July 1874. I have to acknowledge the courtesy of this gentleman in lending it to me.



ARACHNOTHERA CHRYSOGENYS.

(LESSER YELLOW-EARED SPIDER-HUNTER.)

Cinnyris longirostra, Horsf. (nec Lath.), Tr. Linn. Soc. xiii, p. 169 (1820); Vig. Mem. Raffles, p. 672 (1831).

Certhia longirostra, Raffles, Tr. Linn. Soc. xiii, p. 299 (1822).

Arachnothera chrysogenys, Temm. Pl. Col. 388, fig. 1 (1826); Drapiez, Dict. Class. xv, p. 512 (1829); Blyth, J. A. S. B. xii, p. 981 (1843); S. Müll. Verh. Nat. Gesch. Land- u. Volkenk. p. 405 (1843); Müll. & Schl. op. cit. Zool. Aves, p. 69 (1846); Blyth, J. A. S. B. xv, p. 43 (1846); Gray, Gen. B. i, p. 99, no. 3 (1847); Low, Sarawak, p. 410 (1848); Blyth, Cat. B. Mus. A. S. B. pp. 222, 327 (1849); Bp. Consp. Av. i, p. 410, no. 4 (1850); Cab. Mus. Hein. i, p. 106 (1850); Licht. Nomencl. Av. p. 55 (1854); Reichb. Handb. Scansoriae, p. 316, no. 748, pl. 592, fig. 4020 (1854); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii, p. 729, no. 1061 (1856); Moore, P. Z. S. 1859, p. 460; Pelz. Reise Nov. Vög. p. 52 (1865); Gray, Hand-l. B. i, p. 111, no. 1377 (1869); Salvad. Ann. Mus. Civic. Genova, v, p. 181 (1874); Sharpe, P. Z. S. 1875, p. 107; Hume, Str. F. 1875, pp. 85, 319; Sharpe, Ibis, 1877, p. 18; Tweeddale, tom. cit. p. 301.

Cinnyris chrysogenys, Less. Man. d'Orn. ii, p. 31 (1828).

Arachnothera flavigenis, Swains. Class. B. ii, p. 329 (1837).

♂ *ad.* suprâ olivascens, pilei plumis obscurè medialiter saturatoribus: alis saturatè brunneis, tectricibus angustè dorsi colore limbatis: remigibus et tectricibus majoribus aurato-viridibus: caudâ brunneâ aurato-olivaceo lavatâ: supercilio et regione parotica lætè flavis: colli lateribus et regione parotica summâ olivascentibus: genis et gutture toto olivascenti-flavis, plumis lætiore flavo obscurè marginatis: abdomine et pectore cum subcaudalibus lætè flavis, hypochondriis olivaceo vix lavatis: subalaribus pallidè brunneis, flavido marginatis: remigibus subtus brunneis, intus pallidè fulvescentibus.

♀ *ad.* mari similis.

Hab. in peninsulâ Malayanâ et in insulis "Java," "Sumatra," et "Borneo" dictis.

Adult Male. Similar in plumage to the female.

Adult Female. Upper parts olive; the dark centres to the feathers of the crown barely visible; wings dark brown, the least series of coverts very broadly edged with olive, and the remainder of the feathers edged with golden olive; tail brown strongly washed with golden olive; space in front of and below the eyes without feathers; a broad eyebrow and the front and lower half of the ear-coverts bright yellow, remainder of the ear-coverts olive; throat and front of the chest olive-yellow, broadly but indistinctly streaked with yellow and dusky olive; under surface of the body and the under tail-coverts bright yellow slightly shaded on the sides with olive; under surface of the wings brown with the inner margins of the quills and the coverts buff. Total length 5·8 inches, culmen 1·65, wing 3, tail 1·4, tarsus 0·75.

HAБ. Malay peninsula, Sumatra, Java, and Borneo.

THE characters which most readily distinguish this Spider-hunter from its allies are the bare cheeks, the eyebrow and the lower half of the ear-coverts being bright yellow. In the colouring of the sides of the head it somewhat resembles *Arachnoraphis flavigastrea*; but in that bird the yellow feathers entirely surround the eye; and it is further distinguished by its much longer and far more slender bill as well as by the culmen being raised in a sharp edge between the nostrils, a character which separates *Arachnothera* from *Arachnoraphis*.

The following notes have been kindly sent to me by Messrs. Hume and Davison:—"The Lesser Yellow-eared Spider-hunter ranges northward at least as far as Mergui. It is not uncommon in many localities down to the extreme southern point of the Malay peninsula. It affects gardens more than any of the other species; in fact all our specimens were obtained in gardens, and none about the cocoa-nut groves and forest-trees, though, of course, it must occasionally occur about these also.

"There does not seem to be very much difference in the size of the sexes in this species. A male measured in the flesh—length 7 inches, expanse 10·82, tail from vent 1·7, wing 3·5, tarsus 0·75, bill from gape 1·65.

"Several females measured—length 6·75, expanse 10 to 10·25, tail from vent 1·5 to 1·62, wing 3·12 to 3·25, tarsus 0·7 to 0·75, bill from gape 1·62 to 1·65; weight 0·75 ounce.

"Specimens killed in November had the legs and feet fleshy white; the bill dark horny brown, with the edges of both mandibles to within 0·6 of the tip dirty yellow; gape fleshy white; irides brown.

"We do not think that in either this species or in *A. flavigastrea* there is any seasonal change in the colours of the soft parts."

From Sumatra it was first recorded by Sir Stamford Raffles; and it is known there by the native name "Siap Jantung." Mr. E. C. Buxton also procured specimens in the Lampong district; and it is probably a common species on the island. The short-billed specimen in the illustration is in my own collection from Sumatra: it is apparently not quite fully adult; but the shortness of the bill is chiefly due to some injury it has sustained, which has also somewhat altered the form of the gonys, which is lengthened out and terminates in a sharp angle.

The type specimens of this species were collected for Temminck by Kuhl and Von Hasselt on the island of Java, in the wild and wooded district of Bantam; and, according to Dr. Horsfield, it is the "Prit Audun" of the natives.

In Borneo it appears to be a common species. It was first recorded from that island by S. Müller from Bejadjoe. Dr. Beccari procured several specimens from the neighbourhood of Sarawak; and Messrs. Alfred and Henry Everett have collected it at different places in the north-west of the island. One of these, a female from Bintulu, I have above figured and described as a typical specimen, as I can detect no local varieties amongst those which I have examined from the Malay peninsula, Sumatra, Java, and Borneo.



ARACHNORAPHIS ROBUSTA.

(ROBUST SPIDER-HUNTER.)

Arachnothera robusta, Müll. & Schl. Verh. Natuurl. Gesch. p. 68, pl. 11, fig. 1 (1846); Gray, Gen. B. i, p. 99, no. 7 (1847); Blyth, Cat. B. Mus. A. S. B. p. 222, no. 1346 (1849); Bp. Consp. Av. i, p. 410, no. 7 (1850); Cab. Mus. Hein. i, p. 106, no. 575 (1850); Schl. Handb. Dierk. p. 237 (1857); Gray, Hand-l. B. i, p. 111, no. 1373 (1869); Salvad. Ann. Mus. Civic. Genova, v, p. 184 (1874).

Arachnothera armata, Müll. & Schl. Verh. Natuurl. Gesch. p. 68, pl. 11, fig. 2 (1846); Gray, Gen. B. i, p. 99, no. 8 (1847); Bp. Consp. Av. i, p. 410, no. 8 (1850); Gray, Hand-l. B. i, p. 111, no. 1372 (1869).

Arachnothera?, Blyth, J. A. S. B. xv, p. 43, no. 6 (1846).

Arachnothera uropygialis, Gray, Gen. B. i, pl. 33 (1847); Bp. Consp. Av. i, p. 410, no. 10 (1850); Cab. Mus. Hein. i, p. 106, no. 574 (1850); Licht. Nomencl. Av. p. 55 (1854); Gray, Hand-l. B. i, p. 111, no. 1366 (1869).

Arachnoraphis armata, Reichb. Handb. Scansoriæ, p. 313, no. 737, pl. 594, fig. 4029 (1854).

Arachnoraphis robusta, Reichb. tom. cit. p. 314, no. 739, pl. 594, fig. 4031.

Arachnocestra uropygialis, Reichb. tom. cit. p. 315, no. 742, pl. 592, fig. 4017.

Nectarinia robusta, Schl. Handb. Dierk. i, p. 237 (1857).

♂ *ad.* suprâ olivascenti-viridis, dorsi postici plumis longis sericeis flavidis: pilei antici plumis medialiter brunneis quasi squamatis: tectricibus alarum minimis dorso concoloribus: medianis, majoribus et remigibus saturatè brunneis, olivascenti-flavo limbatis: rectricibus nigris, exterioribus ad apicem pogonii interni albidis: plumis anteocularibus fuscis: facie laterali olivascenti-viridi, pileo concolori: genis, gutture et pectore olivascenti-flavis, plumis medialiter fusco lineatis: corpore reliquo subtùs lætius flavo: hypochondriis viridi lavatis: fasciis pectoralibus lætissimè flavis: subalaribus et axillaribus pallidè flavidis, ex illis marginalibus albidis basaliter saturatè brunneis: alis subtùs brunneis intùs emescenti lavatis: rostro brunnescenti-nigro, gonyde versùs basin pallidiore: pedibus saturatè brunneis: iride saturatè brunneâ.

♀ *ad.* mari similis, sed fasciis pectoralibus nullis distinguenda.

Hab. in peninsulâ Malayanâ, et in insulis "Java," "Borneo" dictis.

Adult Male. Upper parts olive-green; sides of the head olive-green, of a slightly more yellow shade on the cheeks; wings dark brown, the least series of wing-coverts edged with olive-green, the other feathers with olive-yellow; upper tail-coverts dark brown, broadly edged with olive-yellow; on the sides of the middle back there are tufts of long yellow and olive silky feathers capable of being drawn over the rump; tail blackish brown, the feathers narrowly edged with olive-yellow, and with pale ends to some of the outer feathers, becoming white on the inner webs; underparts sulphur-yellow, slightly shaded with olive on the throat and front of the breast, and with broad brownish olive central streaks to the feathers of the lower throat; pectoral tufts chrome-yellow; bill and legs brownish black, paler on the

keel and towards the base of the lower mandible; irides dark brown. Total length 8 inches, culmen 2·4, wing 3·4, tail 2·3, tarsus 0·75.

Adult Female. Similar in plumage to the male, only without the pectoral tufts. Total length 7·3 inches, culmen 2·3, wing 3·0, tail 2·1, tarsus 0·7.

HAB. Malacca, Sumatra, Java, and Borneo.

THE Robust Spider-hunter is one of the largest species of this family, and belongs to that division to which I apply Reichenbach's generic title *Arachnoraphis*. This genus I characterize by the culmen between the nostrils being rounded instead of compressed into a sharp angular ridge.

The present species is distinguished from *A. flavigastra* by not having any yellow feathers on the sides of the head, and from *A. crassirostris* by its larger size, and by the less-yellow shade to the margins of the wing-feathers. The great length of the bill is also a well-marked character.

In a letter to me, Messrs. Hume and Davison write:—"We forgot to mention that *A. robusta* is found on the Malay peninsula. We have a specimen with bright orange-yellow pectoral tufts, corresponding well with Müller and Schlegel's figure of that species, excepting that our bird has the bill slightly longer, and not quite so curved. Length in the flesh 9 inches, bill from forehead straight to point 2·4, wing 3·6, tail 2·7. The head is rather more uniformly coloured than in the plate referred to. It was shot within a few miles of Malacca."

Müller and Schlegel, as well as Mr. Blyth, record this species from Sumatra. The former mention a specimen from Indrapore, a village on the west coast of that island. From the same locality they obtained two specimens of their *A. armata*, and a third from Java, in the north-western portion of the Pangeranga Mountains, in coffee-plantations at an elevation of 1100 feet above the sea.

Their *A. armata* I do not consider to be specifically distinct, differing as it does only in its slightly smaller size; and, besides, it appears very improbable that two such closely allied forms, yet distinct species, should occur in the same locality. Mr. Blyth's *Arachnothera*? from Java also appears to agree well with this species.

The *A. uropygialis*, Gray, is, again, a small form of this species; the type, which is in the British Museum, has no indication of the locality where it was collected. This specimen is mounted, and has the loose silky feathers, which grow on the sides of the back, spread out so as to cover the lower back; but the presence of these tufts is no specific character, being generally well developed in both *A. robusta* and *A. crassirostris*.

In the British Museum there is another small-sized specimen, which, from possessing the bright yellow pectoral tufts, appears to be a male; it measures—length 5·5 inches, culmen 1·65, wing 2·8, tail 1·9, tarsus 0·7. Notwithstanding the small size, it undoubtedly belongs to this species; the colouring is fresh and agrees perfectly with three specimens collected by Governor Ussher in the forest districts of North-western Borneo, one of which specimens, kindly presented to me by that gentleman, I have described above as the adult male; and my description of the female is taken from a specimen collected by Mr. Henry Everett in the neighbourhood of Sarawak. I have also seen a specimen in the Darmstadt Museum, kindly shown to me by

Dr. Brüggemann, which was collected at Morara Teweh, in the interior of Southern Borneo, by Dr. Fischer.

The specimen which I have here figured is in the Turin Museum, and was collected by the Marquis Doria; it has unfortunately faded slightly from exposure, which is evidently the reason why the olive shades of the plumage are somewhat less pronounced than in those specimens which have more recently come under my observation from the same locality. It is, however, a remarkably fine specimen, with the bill very long and robust, which is probably a sign of age in the bird. A female, also in the same collection, likewise differs from the above description in the upper parts being browner, the underparts paler and more buff, throat-streaks narrower and slightly more distinct—differences certainly only due to the plumage having faded.

Doria and Beccari inform us that this species was always met with in pairs, and that on one of these being killed its mate might be easily obtained, as it returned immediately to the same spot. A pair entered their house and were captured in a butterfly-net; so that we may presume they are not shy in their habits. With regard to their calling it a common species in Borneo, I think this must apply only to certain haunts, probably the dense forests; for Governor Ussher considers it rare in the north-western portion of the island.

A nest, containing two eggs, was collected by Doria and Beccari, and has been described by Count Salvadori: length 13·2 inches by 4·7 wide; it has the form of a bottle swollen out below and flattened above, and was attached to the undersurface of a leaf which served as a covering and shelter to it. The nest about halfway down has a depression or cavity, into which the young birds can pass through a kind of passage formed at the junction of the leaf with the nest. The nest is constructed of a thick layer of interwoven fibres, leaves, grass, and bark. The manner in which the nest is sewn on to the leaf which covers it is most wonderful, as it is done with fibres which have the appearance of silk, and are fastened on the upper side of the leaf by little knobs which look like actual knots.

The eggs are white, finely streaked with black, and with spots and blotches of that colour towards the obtuse end: length 0·8 inch by 0·6.



ARACHNORAPHIS CRASSIROSTRIS.

(LESSER STOUT-BILLED SPIDER-HUNTER.)

♂ *ad.* suprâ sordidè olivascens, capitis plumis medialiter saturatè brunneis: tectricibus alarum minimis et medianis dorso concoloribus: majoribus et remigibus nigricanti-brunneis, lætè olivascenti-flavo marginatis: supracaudalibus lætiùs flavicantibus: rectricibus nigricanti-brunneis, angustè flavo marginatis, externis versùs apicem pogonii interni pallidè cinerascens vix flavicanti-albidis: plagâ anteooculâ fuscâ: supercilio indistincto et plumis infraocularibus lætiùs flavis: facie laterali fuscâ vix olivaceo lavatâ: gutture et præpectore cinerascens-brunneis, flavo lavatis, gulâ lætiùs flavâ: corpore reliquo subtùs lætè flavo, hypochondriis vix olivaceo lavatis: fasciis pectoralibus lætè aurantiacis: subalaribus et axillaribus albidis paullò flavido lavatis: remigibus infrâ saturatè brunneis, intùs albedo marginatis: maxillâ nigrâ, mandibulâ saturatè brunneâ, basaliter albicanti-cinereâ: pedibus saturatè plumbeis, plantis aurantiacis: iride saturatè brunneâ.

♀ mari similis sed fasciis pectoralibus aurantiacis nullis.

Hab. in pensulâ Malayana et in insulis "Sumatra" et "Borneo" dictis.

Adult Male. Upper parts olive, with dark brown centres to the feathers of the crown; sides of the head olive, with a broad dark-brown band from the nostril through the eye, partially margined above and beneath with yellow; upper tail-coverts dark brown broadly edged with olive-yellow; wings and tail dark brown, the feathers edged with olive-yellow, of a brighter and yellower shade on the quills and greater series of wing-coverts; the tail-feathers have pale ends, broadest on the outer ones, and fading into pale yellow spots on the inner webs of some of them; underparts yellow shaded with ashy olive on the throat and front of the breast, and brightest and yellowest towards the under tail-coverts; on each side of the chest a tuft of bright orange-yellow feathers; under surface of the wings dark brown, with the coverts sulphur-yellow and the inner margins of the quills white; bill, upper mandible black, lower one dark brown with a whitish-blue shade at the base; legs, feet, and claws dark plumbeous, soles of the feet orange-yellow; irides dark brown. Total length 6·5 inches, culmen 1·35, wing 3, tail 1·9, tarsus 0·7.

Adult Female. Similar in plumage to the adult male, but without the bright yellow pectoral tufts.

Immature. Similar in plumage to the adult female, excepting that the underparts are slightly paler; the lower throat and front of the chest inclining to whitish ash. Total length about 5·5 inches, culmen 1·1, wing 2·6, tail 1·3 (the end much worn), tarsus 0·6.

HAB. Malay peninsula, Sumatra, and Borneo.

THIS form of Spider-hunter is the smallest species of the genus *Arachnoraphis*; the bill is smaller

in proportion than that of *A. flavigaster*. From that bird the present species is distinguished by its not possessing a circle of yellow feathers round the eye, and in not having any yellow on the ear-coverts. The quills and greater wing-coverts are broadly edged with yellow, which constitutes a well-marked character in the species.

Messrs. Hume and Davison write to me:—"This Spider-hunter does not occur, so far as we yet know, in Tenasserim; and even in the Malay peninsula it appears to be the rarest of all the Spider-hunters. The only place at which we met with it was at Karoo, about twenty-six miles east, or a little south-east, of Malacca, in the territory of the Rajah of Tampin. In the local governor's garden there was a large *Bombax* tree, which was in flower at the close of October, and which was infested by all the Honey-suckers, amongst which *Arachnothera modesta*, *A. chrysogenys*, *A. longirostra*, *Anthreptes malaccensis*, and several species of *Dicaeum* were most numerous; and it was on this tree that our specimens were obtained; but so rare was it that we had no opportunity of observing its habits.

"There does not appear to be so much difference in the size of the sexes as there is in most of the other species; but, unfortunately, we measured no females in the flesh.

"Two males measured—length 6·5, 6·55 inches, expanse 9·4, 9·62, tail from vent 1·9, 2·05, wings 3, tarsi 0·65, bill from gape 1·3, 1·25; weight 0·62, 0·55 ounce.

"The legs and feet dark plumbeous, soles orange-yellow; upper mandible black, lower mandible dark brown, bluish white at base; irides dark brown.

"These were the colours, be it remembered, on the 28th October; and the colours of the soft parts may possibly change later on in the cold season. One male had the deep-orange pectoral tufts well developed; the other male only showed a faint trace of these tufts on one side; and the female showed no trace of them at all."

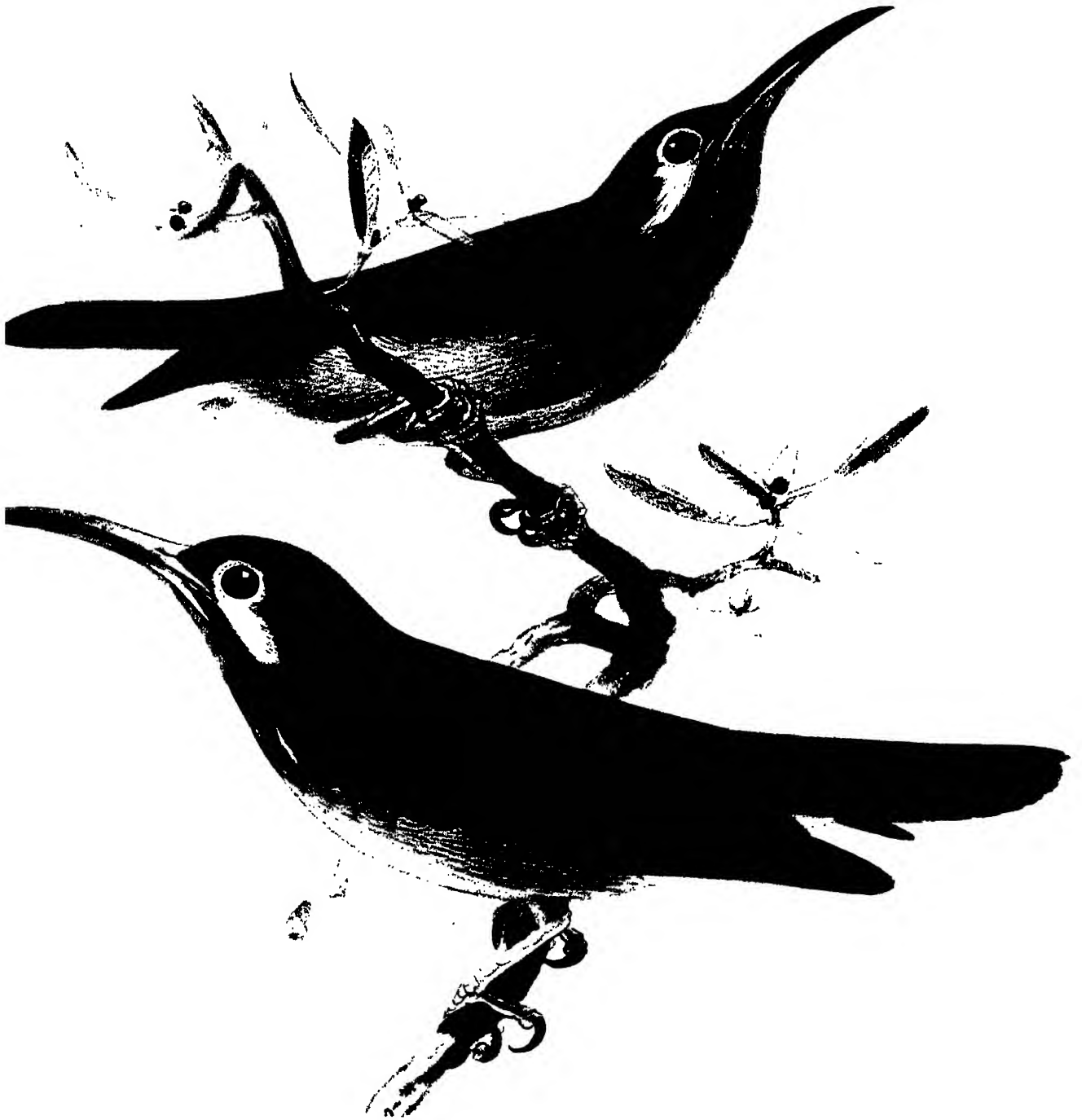
In the British Museum there is a specimen from Sumatra, collected there by Mr. Wallace; and Mr. E. C. Buxton also met with it on that island, in the Lampong district.

Count Salvadori first mentions its occurrence in Borneo, where Dr. Beccari procured two specimens in the neighbourhood of Sarawak. These specimens were unfortunately lost; so that it was a great satisfaction to me to procure an adult male collected by Mr. Henry Everett in the same part of that island. This specimen agrees in every respect with the specimens of that sex above described and figured.

I have examined the types of *Arachnocestra crassirostris*, Reichb., and of *Arachnothera temminckii*, Horsf. & Moore, and have no hesitation in referring them to the same species. The former I have described as the immature bird; for, from the general appearance of that specimen, as well as from the upper mandible being slightly paler at the base, it would appear not to be fully adult. It has probably faded slightly; for according to Reichenbach's original description the throat and breast were yellowish grey. It has been mounted; and therefore the total length can only be measured approximately; and the tail, which was apparently never quite fully grown, is much worn.

The type of *Arachnothera temminckii* agrees perfectly with the adult male above described and figured, and which was collected by Mr. Davison at Karoo, near Malacca.

The female here described and figured is in the Marquis of Tweeddale's collection, and is also from the neighbourhood of Malacca. For the loan of the type of *A. crassirostris*, preserved in the Dresden Museum, I am indebted to Dr. A. B. Meyer.



ARACHNORAPHIS FLAVIGASTRA.

(GREATER YELLOW-EARED SPIDER-HUNTER.)

Anthreptes flavigaster, Eyton, P. Z. S. 1839, p. 105.

Arachnothera flavigaster, Blyth, J. A. S. B. xii, p. 981 (1843); Moore, P. Z. S. 1859, p. 460; Pelzeln, Reise Novara, Vög. p. 53 (1865); Tweeddale, Ibis, 1877, p. 300.

Arachnothera flavigaster, Blyth, J. A. S. B. xiv, p. 557 (1845), xv, p. 43 (1846); Gray, Gen. B. i, p. 99, no. 5 (1847); Blyth, Cat. B. Mus. A. S. B. p. 222, no. 1342 (1849); Horsf. & Moore, Cat. B. E.I. Co. Mus. ii, p. 728, no. 1058 (1856); Gray, Hand-l. B. i, p. 111, no. 1369 (1869); Hume, Str. F. 1875, p. 85.

Arachnothera latirostris, Reichb. Handb. Scansoriæ, p. 316, no. 747, pl. 593, figs. 4024–25 (1854).

Arachnothera cytonii, Salvad. Ann. Mus. Civic. Genova, v, p. 182 (1874).

Arachnothera simillima, Hume, Str. F. 1877, p. 487.

♂ *ad.* olivaceus: alis caudâque magis aurato-brunneis: plagâ anteoculari fuscâ: plumis oculo circumdatis flavis: genis posticis quoque flavis: fasciâ parvâ lineari à rostri basi ortâ nigricante: corpore subtus olivascenti-flavo, plumis plerisque albedo medialiter lineatis, abdomine medio et subcaudalibus puriùs flavis.

♀ *ad.* haud a mari distinguenda, sed minor.

Hab. in peninsulâ Malayanâ et in insulis "Sumatra" et "Borneo" dictis.

Adult Male. Upper parts olive-green, including the least series of wing-coverts; remainder of the wings dark brown, broadly edged and washed with golden olive-colour, which colour alone is visible when the wing is closed; tail uniform golden olive; on the side of the head a large yellow patch encircles the eye and extends over the lower portion of the ear-coverts and the hinder part of the cheeks; the front half of this yellow patch is surrounded by a dusky triangular spot; from the angle of the gape a narrow blackish line along the upper margin of the cheek; chin, throat, and sides of the body yellowish olive shading into purer yellow down the centre of the breast and on the thighs, with the abdomen and under tail-coverts entirely yellow of a rather deeper shade; under surface of the wings dark brown, with the inner margins of the quills rufous buff, and the coverts yellowish white mottled with brown; upper mandible black, lower one pale reddish brown, gape whitish; iris deep brown; eyelids black; legs and feet reddish ochre, claws horny brown. Length 8·8 inches, culmen 1·6, wing 4·3, tail 2·4, tarsus 0·9.

Adult Female. Similar in plumage to the male, but smaller.

HAB. Malay peninsula, Sumatra, and Borneo.

THIS Spider-hunter may be easily recognized by the feathers surrounding the eye and the lower portion of the ear-coverts being yellow; in this character it somewhat resembles *Arachnothera*

chrysogenys; but its large size, the proportionally shorter and stouter bill, and the flattened form of the culmen between the nostrils, at once characterize it.

Messrs. Hume and Davison write:—"We believe the Great Yellow-eared Spider-hunter does not extend so far north as Tenasserim; for we have never succeeded in obtaining a specimen there, and from its large size it is not easily overlooked. *A. chrysogenys*, which does occur in the south of Tenasserim, has probably been mistaken for it. In the neighbourhood of Malacca, at Kuroo, Choharg, Pulo Seban, at Johore, and other localities in the Malay peninsula, it is not uncommon.

"The greater number of our specimens were obtained about some cocoanut-trees then in blossom, in an old deserted Chinese clearing fifteen miles from the town of Johore. On the cocoanut inflorescence they always perch to suck; but in the case of other flowers they often poise themselves, on rapidly fluttering wings, in front of the blossoms on whose nectar they are feeding.

"The males are very much larger than the females.

"*Male*. Length 8·62 to 8·8 inches, expanse 13·12 to 14·12, tail from vent 2·1 to 2·5, wing 4·25 to 4·55, tarsus 0·85 to 0·95, bill from gape 1·7 to 1·85; weight 1·75 ounce.

"*Female*. Length 7·75 to 8·25, expanse 11·5 to 12·75, tail from vent 1·82 to 2·2, wing 3·82 to 4, tarsus 0·8 to 0·85, bill from gape 1·6 to 1·65; weight 1·25 to 1·5 ounce.

"Of our numerous specimens, killed from August to November, the colouring of the soft parts were as follows:—Legs and feet yellowish or reddish ochre, claws horny brown; upper mandible black or blackish brown, lower mandible pale brown or pale reddish brown, gape whitish or pinkish white; irides deep brown, edge of the eyelids greenish black."

Excepting in the southern half of the Malay peninsula, it appears to be by no means a common species.

In Sumatra it has been collected by Mr E. C. Buxton in the south of the island, in the Lampong district; and his specimens are, as the Marquis of Tweeddale informs us, identical with typical examples.

In Borneo it appears to be a rare bird, restricted, as far as we yet know, to the neighbourhood of Sarawak, where Doria and Beccari only collected a single specimen, and where, quite recently, Mr. Henry Everett has again procured it. The specimens from this island appear to be peculiarly small. One of Mr. Everett's specimens, from Sarawak, in my own collection, measures—length 6·7 inches, culmen 1·55, wing 3·8, tail 2, tarsus 0·8; and the specimen recorded from the same locality by Count Salvadori is likewise of small size; but they are not, in my opinion, on that account, to be separated from the Malacca bird, as they are perfectly identical in plumage.

Another small specimen, collected by Mr. Davison at Malacca in July 1877, has been separated by Mr. Hume as a distinct species, on account of the peculiar form of its bill:—"Extremely like *A. flavigaster*, Eyton, but smaller, somewhat yellower above and below, with a much smaller bill, and distinguished at once by the rami of the lower mandible not meeting to form the angle of the gonys till within 0·6 of the point.

"Dimensions (from skin)—length 6·5, wing 3·8, tail 2·0, tarsus about 0·9, bill at front from forehead 1·3."

Mr. Hume has most kindly forwarded to me, for description, this specimen. From the structure of the under tail-coverts it is evident that the specimen is immature, which at once accounts for the somewhat brighter colouring of the plumage, and possibly also, to some extent, explains its small size. The very peculiar form of the bill is, in my opinion, entirely due to malformation, caused apparently by an injury to that part just beyond the nostrils, which must have happened when the bird was quite young. To advance this theory for such a very striking peculiarity might appear hasty, had I not before me a specimen of *Cinnyris cruentatus* from Abyssinia with a precisely similar malformation of the bill: this specimen was formerly in Mr. Sharpe's collection, and is now in the British Museum.

Owing to the hybrid construction of the name given to this species by Eyton, Count Salvadori has proposed for it that of *eytonii*; but I cannot see any advantage to be derived from discarding the original and generally adopted title, even if it is less classically correct.

My description of the adult male is taken from a specimen collected by Mr. Davison at Johore, and now in Mr. Hume's cabinet; and the entire length and the colouring of the soft parts are from the label attached to that specimen. The lower figure in the illustration represents a specimen from Malacca, in my own collection, and the upper figure the type of Mr. Hume's *A. simillima*.



PROMEROPS CAFER.

(CAPE LONG-TAILED SUN-BIRD.)

Merops cafer, Linn. S. N. i. p. 183 (1766); P. L. S. Müller, S. N. ii. p. 248. no. 7, pl. 8. fig. 5 (1773).

Upupa promerops, Linn. S. N. i. p. 184 (1766); P. L. S. Müller, S. N. ii. p. 251. no. 2, pl. 8. fig. 7 (1773); Lath. Ind. Orn. i. p. 278. no. 5 (1790); Licht. Cat. Rer. Nat. Hamb. p. 23 (1793); Bechst. Kurze Uebers. p. 173. no. 5 (1812); Lath. in Salt's Voy. Abyss. ii. p. 344 (1816).

Le Promerops du Cap de Bonne Espérance, Buff. Pl. Enl. vi. p. 516.

Promerops brun à ventre tacheté, Buff. tom. cit. pl. 637.

Cape Promerops, Lath. Gen. Syn. ii. p. 692 (1782).

Certhia caffra, Gm. S. N. i. p. 484 (1788).

Le Promerops, Aud. et Vieill. Ois. Dor. i. p. 13, pl. 4 (1802).

Le Grand Sucrier où Sucrier du Protea, Levaill. Ois. d'Afr. vi. p. 139, pls. 287, 288 (1808); Sundev. Crit. om Levaill. Ois. d'Afr. p. 56 (1857).

Promerops cafer, Shaw, Gen. Zool. viii. p. 143 (1811); Gray, Gen. B. i. p. 97 (1847); Bp. Consp. Av. i. p. 410. no. 876 (1850); Reichb. Handb. Scansoriæ, p. 352, no. 772, pl. 613. figs. 4094-96 (1854); Grill, Zool. Anteckn. pp. 11, 39 (1858); Pelzeln, Reise Novara, i. p. 53 (1865); Gray, Hand-l. B. i. p. 109. no. 1338 (1869); Sharpe, Cat. Afr. B. p. 36 (1871).

Cinnyris longicaudatus, Vieill. N. Dict. xxxi. p. 510 (1819).

Nectarinia caffra, Licht. Verz. Doubl. p. 15 (1823).

Falcinellus griseus, Bonn. et Vieill. Enc. Méth. ii. p. 580 (1823).

Cinnyris capensis, Less. Man. d'Orn. ii. p. 49 (1828).

Promerops capensis, Less. Traité, p. 322 (1831).

Ptiloturus cafer, Cab. Mus. Hein. i. p. 104. no. 566 (1850).

Ptilurus cafer, Licht. Nomencl. p. 55 (1854). •

Promerops caffer, Müll. J. f. O. 1855, p. 12; Layard, B. S. Afr. p. 74 (1867); Sharpe, Cat. Afr. B. p. 36 (1871); Shelley, Ibis, 1875, p. 70.

♂ *ad.* fronte stramineâ: dorso sordidè brunnescute: caudâ longissimâ.

♀ *ad.* mari similis, sed caudâ breviorè distinguenda.

Hab. in Africâ meridionali.

Adult Male. Upper parts, including the wings, dark brown, with broad pale edges to the feathers; forehead pale brown, the lanceolate feathers of the crown edged or tipped with brownish buff; the edges of the feathers on the back of the neck slightly tinted with rufous, those on the back, scapulars, and wings shaded with olive; lower back and upper tail-coverts olive-yellow; tail very dark brown, washed with

ash, giving it a slight silvery gloss; sides of the head dark brown, the lower portion of the cheeks and ear-coverts, chin, and upper throat white; a narrow black band from the lores to halfway down the sides of the throat; lower half of the throat and front of the chest rufous shaded with brown, with broad white tips to the feathers; remainder of the breast white, with large dark brown centres to the feathers on the sides; thighs dark brown; vent and under tail-coverts bright yellow, the latter with large dark brown centres; bill and legs black; irides dark brown. Total length 19·5 inches, culmen 1·3, wing 4, tail 14, tarsus 0·95.

Adult Female. Similar in plumage to the male. Total length 15·7 inches, culmen 1·25, wing 3·8, tail 11, tarsus 0·95.

Young Male. Length 12·3 inches, culmen 1·2, wing 3·55, tail 8, tarsus 0·95.

Young Female. Length 9·4 inches, culmen 1·15, wing 3·2, tail 5·1, tarsus 0·85.

HAB. South Africa, confined to the Cape colony.

THIS large Sun-bird is remarkably graceful in form, and may be readily distinguished by its long soft tail-feathers. Though possessing none of the rich metallic colours so usual in this family, it is nevertheless a very striking and beautiful species. It inhabits South Africa, and is there confined to Cape colony, where it is very abundant, both in the neighbourhood of Cape Town and in the George district, but does not extend on the west coast further north than the limits of the colony, while to the eastward it becomes very rare, and in Natal is replaced by another nearly allied form, *P. gurneyi*, which may be readily distinguished from the present species by the chestnut-colour of its forehead, crown, and fore part of its breast.

In the few weeks that I spent in Cape colony I had frequent opportunities of observing the habits of this fine species, as I found it plentiful in the gardens of Cape Town and the immediate vicinity, as well as at Mossel Bay. They were generally met with in small groups, probably family parties, frequenting the thick scattered bushes, into which they would quickly dive if alarmed, though at other times they preferred the outer twigs, especially those towards the summit of the bushes.

During my stay in the colony the *Protea* bushes were out of flower, and the most attractive plants at that season were the tall aloes, whose white and yellow blossoms attracted the Sun-birds from the neighbourhood, so that they were often surrounded by a band of this species, their long silky tails fluttering like ribands to the slightest breeze, while they clung to the flowers and probed them with their beaks in search of the sweet nectar and the small insects, the latter consisting chiefly of spiders and a few flies and small beetles.

Their flight is very peculiar, consisting of long regular undulations at a few feet from the ground, their long tails at such times appearing to consist of a single feather.

At Mossel Bay, in a short walk round the town, the number of Sun-birds that I saw was quite astonishing, the *Protea* bushes literally swarming with the four common Cape species *Promerops cafer*, *Nectarinea famosa*, *Cinnyris chalybeus*, and *C. afer*; yet each species kept separate, and the individuals of the same kind were not, properly speaking, gregarious. The present bird alone kept in small family parties, which "followed their leader" from bush to bush, after the manner of *Colius*, or of our European Long-tail Titmouse. At such times their

note is frequently heard; this assembly call has nothing musical in it—but is quaint, if not actually pleasing.

Mr. Layard, in his 'Birds of South Africa,' gives the following account:—"This Honey-eater differs considerably in all its habits from the Sun-birds with which it is associated. It is generally found in small parties, the members of which, though acting much in concert, still maintain their individuality. They follow one another to favourite bushes, chase each other or feed amicably side by side; and if one is alarmed and flies off, the rest generally follow; yet they cannot be called gregarious in the strict sense of the word. They are fond of perching on the summit of high bushes, particularly *Proteaceæ*, from the flowers of which they extract their food, consisting of insects and the limpid saccharine juice which these plants supply plentifully, and which will often run in a copious stream from the bill of a fresh-killed specimen.

"Levaillant states that it constructs a hemispherical nest in the largest *Protea* bushes, covered externally with moss or lichen, and lined with hair and wool. The eggs he describes as olivaceous; but my son procured a nest, which he assures me belonged to this bird, cup-shaped, about three inches in diameter within, composed of rootlets, grasses, and the spicular leaves of fir, mingled with the silky dark orange seeds of the *Protea*. The single egg contained in it instantly reminded me of the Bunting of England, being a pale dirty cream-colour, irregularly though sparingly marked with wavy tracery and hair streaks, now and then inclining to blotches of a dark purple-brown, or a pale indistinct purple; axis 11 lines, diameter $8\frac{1}{2}$ lines.

"Subsequent discoveries of nests and eggs confirm the truth of my son's observations. I find they breed in the months of May, June, July. Mr. W. Atmore informs me that he has found many nests, always cup-shaped, and placed in the fork of a mimosa."

Mr. Rickard found it at Port Elizabeth, where, he remarks, it is common when the red *Protea* is in flower, and breeds there, but does not stay all the year.

M. Levaillant endeavoured to keep this species as a cage bird, and during his stay at the Cape had several alive, which were easily tamed. For food he gave them each day flowers of the *Protea* while such could be obtained, or else those of a large orchid with yellow blossoms, which, he remarks, is a very favourite plant with the Sun-birds; when flowers were no longer to be procured, he fed them with honey and water, and had the satisfaction of seeing them dive their long bills into the chalice of the flowers or into the glass to suck the sweet fluid. This species was one of those which kept alive for the longest time while at sea on his way to Europe.

The length of tail, which varies in different specimens, depends upon the age of the individual and the season more than on the sex. The specimen figured and described is a male procured by myself at Cape Town on the 7th of February; and the measurements of the adult female and of two probably young birds are taken from specimens shot out of the same flock or family party, which consisted of six individuals.

PROMEROPS GURNEYI.

(GURNEY'S LONG-TAILED SUN-BIRD.)

Promerops cafer, Gurney, Ibis, 1862, p. 27 (nec Linn.).

Promerops gurneyi, J. Verr. P. Z. S. 1871, p. 135, pl. 8; Sharpe, Cat. Afr. B. p. 37 (1871); Barratt, Ibis, 1876, p. 202.

♂ *ad.* similis *P. cafero*, sed caudâ brevior et præcipuè fronte vertice et præpectore castaneo-rufis distinguendus.

Hab. in parte orientali Africæ australis.

Adult. Very similar to *P. cafer*, and differing only in the forehead, crown, lower portion of the throat, and front of the breast being chestnut, and in having no moustachial streak; bill and legs black; irides dark brown. Total length 10·1 inches, culmen 1·1, wing 3·75, tail 6·6, tarsus 0·9.

HAB. South-eastern Africa, Natal and the Eastern Transvaal district.

Obs. The sexes are similar in plumage. The description is taken from a specimen in the British Museum collected by Mr. Barratt at Lydenburg; and the figure is drawn from one also procured by that gentleman in the same locality, and now in my own collection; this latter specimen has the wings and tail slightly shorter, and is possibly not so fully adult, but is perfectly similar in colouring.

THIS species may be readily distinguished from *P. cafer*, the only closely allied form, by the chestnut colour of the crown and breast, while in size and shape it is so similar to that bird that we may safely conclude the habits and economy to be alike in the two species.

It is much rarer than *P. cafer*, and appears to be restricted to a very small area, having as yet only been procured by Mr. Ayres in Natal, and by Mr. Barratt near Lydenburg; and as the former gentleman only met with it during the South-African winter season, it possibly extends further inland than we are at present aware of. According to Mr. Ayres's notes on Natal birds, published in 'The Ibis' by Mr. Gurney:—"In habits this bird much resembles *Nectarinia natalensis*, its food also being the same, viz. nectar and small insects, especially spiders. It is very rare in this locality, and besides is more shy than most other species. I believe it is only to be found during the winter months." Mr. Barratt states that his specimens were procured between Lydenburg and Pretoria, and were found exclusively on the "Zuikerbosch," or sugar-bush.

The few specimens which I have seen of this bird have the tail rather shorter than is often the case with *P. cafer*; and this is, I suspect, a character of the species; but, owing to the scarcity of specimens, such cannot be positively asserted. As Mr. Barratt is again about to visit Lydenburg, we may hope to receive additional information concerning this rare and interesting species.

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AUTHOR OF 'A HANDBOOK TO THE BIRDS OF EGYPT,' ETC.

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Cinnyris mariguensis.
C. brasiliensis.
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C. gutturalis.
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A. rectirostris.
A. tephrolæma.

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Æthopyga shelleyi.
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Arachnothera dilutior.
Cinnyris frenatus.
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C. bowieri.
C. andamanicus.
Nectarinia tacazze.

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C. grayi.
C. porphyrolæmus.

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C. aspasiæ.
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C. masurensis.
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C. lotenius.
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A. celebensis.
A. chlorigastra.

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<i>A. aurata.</i>	<i>Arachnoraphis robusta.</i>		

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AUTHOR OF 'A HANDBOOK TO THE BIRDS OF EGYPT,' ETC.

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Anthreptes anchieta.
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PROSPECTUS.

IN the present work the author proposes to treat only of the Cinnyridæ or true Sun-birds, leaving for a later period the consideration of the other forms which link these birds with the large group of the Honey-suckers. To a great extent the scope of this Monograph will be similar to that of the little volume on Sun-birds published in 1843 by the late Sir William Jardine in the Naturalist's Library, which work, for many years the best authority on the subject, is now out of date, owing to the number of species that have been described since the above-mentioned year.

For some time past the author has been engaged in collecting the material for a Monograph of these beautiful birds; and having enjoyed the opportunity of studying them in a state of nature in Western and Southern Africa, he hopes to make a description of their habits one of the special features of his work.

Neither time or expense will be spared to render the Plates as good as possible, to do the greatest amount of justice to the gorgeous and metallic plumage with which the birds are adorned. The author cannot, however, but congratulate himself on having secured the efficient hand of Mr. Keulemans for the execution of the Plates; and this gentleman's position as a natural-history artist will be a guarantee that this branch of the work will be ably performed. Like the author, Mr. Keulemans has also studied Sun-birds in a state of nature, and is therefore acquainted with their characteristic mode of life.

There is no occasion to dilate on the beauty of the family. The Humming-birds, which they so much resemble in appearance, are the only members of the feathered tribes which can approach them in brilliancy of plumage.

The present Monograph will be issued in 4to-sized Parts, which will be published as rapidly as possible, consistently with a proper execution of the Plates.

The price of each Part will be *One Guinea*, and will contain *ten* coloured Plates, with full descriptive letterpress, &c.

It is computed that Twelve Parts will be required to complete the entire work. On the conclusion of the work, should any copies remain, the price will be raised.

Intending Subscribers are requested to write to the author, The Guards' Club, Pall Mall, S.W., or to R. H. PORTER, 6 Tenterden Street, Hanover Square, who has charge of the publication of the work.

Post-Office Orders payable at Vere Street, W., and Cheques crossed London and County Bank, Hanover-Square Branch.

PROSPECTUS.

THE author has now the pleasure of announcing the completion of his Monograph of the Sun-birds; and, the subscription-list being closed, the price of the work is raised to £15, in accordance with the previous announcements.

No pains have been spared to make the work as perfect as possible; and the volume consists of five hundred pages and one hundred and twenty-one beautifully coloured plates, and contains figures, descriptions, and synonymy of one hundred and thirty-eight species of Sun-birds.

The universal commendation which has been bestowed on the plates of Mr. Keulemans has fully justified the confidence which the author placed in that talented artist, who has in every case done justice to his subject.

The beauty of the plates alone renders the present volume a delightful work for the library or drawing-room, the splendid colours of the Sun-birds being only rivalled by those of the Humming-birds, which they resemble in external appearance.

The author would recommend his subscribers to get their copies bound by Mr. R. H. Porter.

All applications for this work should be made to R. H. Porter, 6 Tenterden Street, Hanover Square, W., who has sole charge of the publication.

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